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White Paper

Global Warming

Second Volume:

Global Warming and Employment

*The owl Treachery gaily lays its clutch*  
*Victor Hugo: Les Châtiments*  
*(Castigations)*

November 2015

## Summary

*The happy torturer, martyr who weeps,  
The festival seasoned and sweet with blood;  
Poisonous power making despots weak,  
And people amorous of being subdued.  
Charles Baudelaire: Les Fleurs du Mal  
(The Flowers of Evil)*

### I. The tenth crusade

This is the first time in the history of humanity that a civilization – our civilization! – has launched a worldwide crusade: to change the concentration of CO<sub>2</sub> in the atmosphere. Previous crusades – nine of them officially, but there have been thousands under other names – have always targeted a neighbor whose religion displeased us, or whose land or resources we coveted. The current crusade has planetary ambitions and is utterly unprecedented.

Of course, it is a pointless crusade: we do not understand the CO<sub>2</sub> cycle, and the means at our disposal are insignificant; the planet is quite untouched by them. Our flustered activity will do nothing to alter CO<sub>2</sub> concentrations, any more than it could cause the satellites of Jupiter to become bigger or smaller.

Never in the history of humanity has a crusade been launched on such absurd premises or by such incompetent leaders. The slogan, ‘We have to save the planet’, overrides all rational thought and analysis. Poisonous power has made despots weak.

As ever, the good people have given their approval; they are accustomed to such naiveties and are, as Baudelaire says, ‘amorous of being subdued’. What is a little more surprising is that scientists have given their endorsement. More surprisingly still, industrialists have collaborated in an initiative that can only do them harm. In a matter of a few years, a country – France – that gave birth first to Descartes and then to Voltaire has lost all reason, rallying behind the slogan, ‘We have to save the planet’.

Born of absurdity, the jolly crusade soon lost all coherence, replacing its initial slogan of ‘reducing CO<sub>2</sub>’ with the banner of ‘eradicating everything that is bad for the planet’. This is where everyone started chipping in and naming their victims, so that in a very short time every human activity became some denigrator’s target. Without any checks, validations or verifications, the happy torturers made the most of their new power.

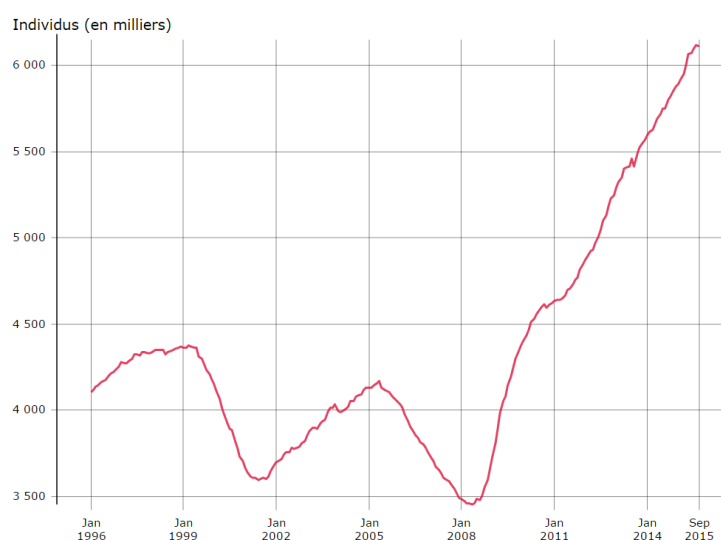
Such commitment, such an abundance of means for so many years, such blinkered vision, such determination could not but have an effect, not on the planet but on the crusaders themselves – a little like an army setting off to wage war which has to cross a desert, going in deeper and deeper every day, so that every day it becomes a little harder to turn back.

And this is just what has happened, as might have been predicted even before the crusade began.

This second volume of our White Paper looks at the ways in which the crusade has damaged the French economy. Having once carried the torch of civilization and virtue, France is now verging on the ideology of an underdeveloped nation, seeking to husband its scarce resources, share them, recycle them – anything rather than manufacture new products, because ‘it’s bad for the planet’.

## II. The consequences

We all know, from experience and observation, that unemployment in France has been rising for years. The following graph shows the figures over the past 19 years.



*Figure 1. Registered jobseekers at the end of January (categories A, B, C, D and E) between 1996 and 2015*

Key:

Individus (en milliers)	Individuals (in thousands)
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Source: INSEE, ‘Registered jobseekers at the end of January – Categories A, B, C, D and E (all categories) – mainland France – Series CVS-CJO – Graph’

Link: <http://www.insee.fr/fr/bases-de-donnees/bsweb/graph.asp?idbank=001572362>

Unemployment in France is at a record high: the current figures have never been exceeded, at any time in French history. They are generally blamed on all sorts of economic factors, including labor costs and globalization. The unemployment figures are just one of several indicators: similarly, the number of people in receipt of welfare benefits is rising.

This second volume of the White Paper will be establishing this fact: that over and above the exorbitant cost of the direct struggle against global warming (costs that the French Audit Office is carefully recording), the crusade is the main cause of job losses.

Let us look at what is happening, in a typical scenario that one might come across every day.

### III. A typical scenario

The French Ecology Ministry, which needs to justify its existence, comes out with the occasional high-sounding slogan: 'The air has to be clean!'

Okay, it sounds right, and the good people are happy to have clean air. Nobody wants to live in a polluted atmosphere, in a kitchen whose walls are black with soot. Everyone is pleased the Ministry is thinking about the health of the planet and of the population.

The Ministry immediately arms itself with all sorts of pseudo-scientific studies which show that concentrations of CO<sub>2</sub>, NO<sub>37</sub> and galvanized rubidium bichromide have varied significantly over the past 30 years. This means, of course, that, if the air were cleaner, life expectancy would increase by three months and 42 days for 93% of the population, including the elderly and pregnant women, and that the increase in the planet's temperature would be limited to 0.5°C within three months. Nobody verifies these studies, and the underlying data are not published.

The good people tremble: we're living in a foul atmosphere; something must be done. Thank goodness we have the Ministry of Ecology! The good people are delighted that so much care is being taken and that science is being put to such good use.

The chorus of lament, that is, France's 27 Associations Agréées Surveillance Qualité de l'Air (AASQAs – Approved Air Quality Monitoring Associations), immediately declare that the solution is to restrict travelling on rainy days, because it is a well-known fact that car fenders contain galvanized rubidium bichromide, which tends to be transformed into trichromide by cosmic rays, combining with the beryllium 7 they contain. Airparif (the air quality monitoring association covering Paris) suggests a speed limit of 32 km per hour for four-wheeled vehicles using the Boulevard Périphérique (Paris ring road); its counterpart in central France, Lig'Air, is unable to make its various models work.

A study conducted by an intern at the Vanuatu Institute of Technology shows that, in certain circumstances, CO<sub>2</sub> is released in the event of prolonged contact between galvanized rubidium bichromide and a coconut shell. This study is immediately picked up by the IPCC. It is the subject of an article in the journal, *Pour la Science*, with an additional commentary by senior editor Maurice Mashaal, who writes an article entitled, 'How to answer the climate skeptics'.

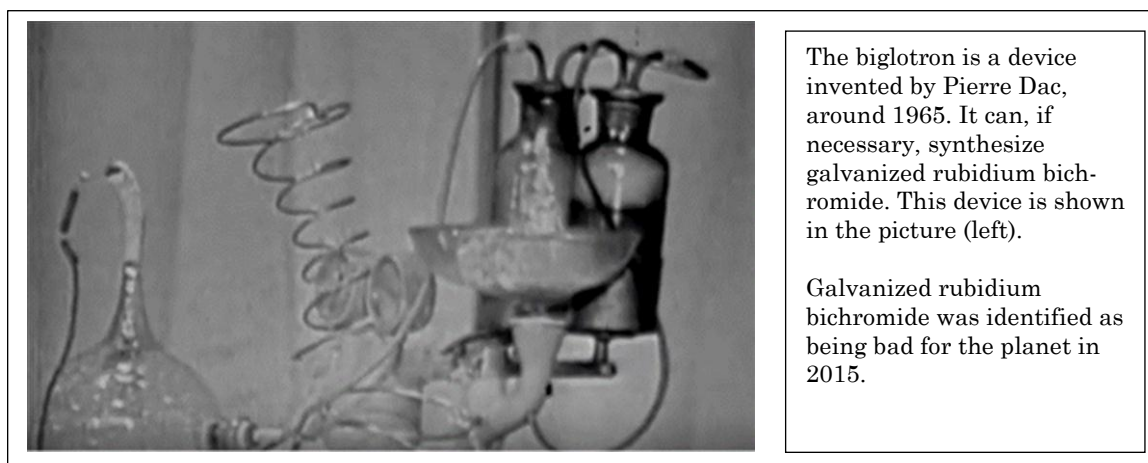
In its health section, the French newspaper, Le Monde, publishes a piece entitled, ‘Do we really know the effects of galvanized rubidium bichromide?’

A regulation is immediately issued, limiting emissions of  $\text{CO}_2$ ,  $\text{NO}_2$ ,  $\text{NO}_3$ ,  $\text{NO}_{37}$  and all bichromides; this regulation takes immediate effect throughout the country.

It immediately brings to a standstill every industry that uses galvanized rubidium bichromide, leading to the loss of all associated jobs.

**Reason given: it’s good for the planet.**

This scenario has been somewhat simplified, in that there is as yet no such thing as galvanized rubidium bichromide.



The scenario described above is a good depiction of the way in which regulations emerge.

#### IV. If the mind protests, we stifle it

*(Victor Hugo: Les Châtiments [Castigations])*

Nobody, at any time, has bothered to ask what ‘the air has to be clean’ really means. Nobody has asked the following simple, silly questions:

- What is the normal, usual composition of the atmosphere? The usual atmosphere is not ‘clean’; it is a mixture of all sorts of dusts and gases. Have we properly studied the atmosphere’s composition and its variability? The atmosphere is not the same everywhere or all of the time.
- Do we actually need the atmosphere to be cleaner? By their very nature, human beings are able to adapt to any environment. France has no public health problems linked to the composition of the atmosphere: it has one of the longest life expectancies in the world.

- What is the economic cost going to be of all these measures to alter the composition of the atmosphere? Will we still be able to have a manufacturing industry and transport sector? What might the negative consequences be?

These questions have never been asked, and they will never be asked. The decision that has been taken is legitimate because ‘it’s good for the planet’. The crusade begins, with the usual cortège of false virtues: there are ‘soft’ modes of transport, ‘virtuous’ industries, imbecilic Ministry advertisements calling on us to ‘pedal for the planet’.

## **V. Mystical delusion**

What we are talking about here is a full-blown mystical delusion. It is difficult to believe that some of our policymakers have degrees in engineering. The notion of purity – of the air, or of race – returns to the fore occasionally in one form or another. It is one of the key elements of mysticism: there are the pure and the impure. The duty of the pure is, by definition, to cleanse or eliminate the impure. There are associations that fight for the purity of the air, just as there are those that fight for the purity of an ideology.

## **VI. The Grenelle Environment Round Table**

What brought us to this point, in a country that sees itself as rational? The answer is simple, clear and proven: the Grenelle Environment Round Table.

Previously, the final judge of any theory was experience: data were collected, and if the theory did not agree with the data, then the theory had to be modified. This took time, and an effort was made to distinguish clearly between a proven theory and a mere hypothesis.

All of this has gone by the board: now we have no theory, no data, no hypothesis. The ultimate aim is to secure a consensus. Once this consensus has been achieved, the policymakers can legislate to their hearts’ content. Since it is very easy to achieve a consensus on the notion that ‘the planet is in danger’, new rules and regulations are being issued every day: it makes people happy. Data no longer serve any purpose. As we saw in Volume I, NOAA data on temperatures show no evidence of global warming. So what? We have to legislate to prevent global warming, because there is a consensus that it exists.

## VII. Rights no longer exist

Mrs Malaimée Lepauvre is a single mother with one child. In order to survive, she has an insecure, part-time job in Paris. She lives a long way from the capital and uses her car to drive to work. She leaves her car in an underground parking lot, where her friend allows her to use her parking space.

Mrs Lepauvre's car is old. She doesn't have a driver or parliamentary allowances. Every day she pays her dues – all sorts of taxes and tolls, which punish her for not wanting to work close to where she lives.

But one fine day – if we can call it that – an association called Airparif decides that the planet can no longer put up with Mrs Lepauvre's car. It is banned from the roads, for a day, for a week, forever.

If Mrs Lepauvre inadvertently ignores a yellow line, hatched area or red light, she will be prosecuted, in accordance with the law, but the legal system will provide her with assistance and the right to appeal.

In this case, however, there is no right of appeal. Nobody knows what Airparif's decisions are based on. Nobody has seen their data, and nobody has analyzed them. Nobody has seen Airparif's mathematical models, and nobody has validated them. At the height of the twenty-first century, despite the fundamental rules of science, despite the fundamental rules of law, an association can, legitimately and with total impunity, declare that the planet will not allow Mrs Lepauvre to go to work.

Carry on, you pale-faced, sycophantic hypocrites, carry on saving the planet! Mrs Lepauvre no longer has the right to travel, or to go to work. So be it! She still has the right to vote.

## VIII. The owl Treachery gaily lays its clutch

*(Victor Hugo: Les Châtiments [Castigations])*

No civilization before ours has ever tried to influence the state of the planet; it takes a hefty dose of arrogance that only the twenty-first century could muster.

The nine previous crusades aimed to conquer the Holy Land and chase out the infidels – simple, focused ambitions that were thwarted every time. The tenth crusade, the crusade against CO<sub>2</sub>, is planetary. When you look at the intellectual level of the people who made the decision (who couldn't organize a piss-up in a brewery), you might chuckle to yourself that it is the crusaders who are going to suffer. But the intellectual satisfaction is short-lived. We, ordinary French citizens, are the crusaders, and the destruction of our economy concerns us all.

Jobs are not being relocated; they are being destroyed. This is what the following analyses clearly show. Our economy has gradually become more and more like that of an underdeveloped nation, with a return to the sharing of goods that civilization had made available to each and every one of us. Car-sharing is vaunted as a virtue ('it's good for the planet'), but it means that people are buying fewer cars. Recycling is recommended ('it's good for the planet'), but it means that people are buying fewer new products. We are encouraged to use less lighting in public and private spaces ('it's good for the planet'), but the economy is suffering.

We are told that we have to reduce the share of nuclear power in the energy mix and increase the share of so-called 'renewables'. Okay, but SCM has looked at things from another angle: if we had used conventional nuclear power plants to generate all the electricity produced by wind turbines and photovoltaics, how much money would we have saved?

The answer is very simple (and is explained in detail in the second part of this White Paper): if France had not used wind turbines to produce electricity, but had relied solely on nuclear power plants, the country would have saved about three billion euros since 2006.

If we had not used photovoltaics to produce electricity, but had relied solely on nuclear power plants, we would have saved about eight billion euros since 2009.

Perhaps it is time to open our eyes and react, to realize that all these pretty notions have been bandied about by people and organizations with a vested interest, who have gaily been laying their clutch. Nuremberg has to take the place of Grenelle, and as quickly as possible.

## **IX. Organization of this volume**

This second volume of our White Paper is divided into two parts:

### **Part One: Jobs are disappearing**

The first chapter, entitled 'A fish rots head first', looks at policy-making mechanisms.

Chapter II is devoted to biofuels: the perfect example of an imbecilic policy, driven by the 'it's good for the planet' slogan, which, worldwide, has led to several hundreds of millions of people finding themselves below the poverty threshold. How many have died? How many millions? We don't know precisely, but there are grounds to believe that biofuels have killed more people than Stalin and Hitler put together. How admirable is that?



The later chapters are devoted, in this order, to infrastructures, the automotive industry, the energy sector, agriculture, and ‘green’ employment, and show just how many jobs have been lost, all because ‘it’s good for the planet’.

## **Part Two: The Brutalizing Whip**

### **Chapter I: Ever more money**

In this chapter we show that, in the final analysis, the French State has never had so much money. Neither income from taxes nor State borrowing have ever been so high. Many former budget items have disappeared, with expenditure on defense, for example, being constantly reduced. Living in a time of peace, we could be enjoying a well-established prosperity, because the State has never had so many resources at its disposal.

But it is not using our money for things that might bring us this prosperity; on the contrary, it is using it to design and implement alternative forms of energy. It is a choice whose negative effects are being felt in our everyday lives. In this chapter, we provide detailed calculations that show the exorbitant cost of wind and solar energy.

### **Chapter II: The four clutches laid by the owl Treachery**

- First clutch: The French Ecology Ministry, with all its associated bodies, air-quality associations, and so on.
- Second clutch: All the journalists, press, television, radio, scientific journals, and so on.
- Third clutch: Scientists of every kind and background.
- Fourth clutch: Corporate environment and communications departments.

We end this White Paper with a brief question: what can be done to prevent the owl Treachery laying another clutch?

Bernard Beauzamy

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The first volume of the White Paper is available at:

[http://www.scmsa.eu/archives/SCM\\_RC\\_2015\\_08.pdf](http://www.scmsa.eu/archives/SCM_RC_2015_08.pdf)

Comments received about the First Volume of this White Paper are available at:

[http://www.scmsa.eu/archives/SCM\\_rechauffement\\_commentaires.pdf](http://www.scmsa.eu/archives/SCM_rechauffement_commentaires.pdf)

(both in French and in English)

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About our Company : SCM SA is a private company, established in 1995. We are doing mathematical models, mostly for decision help. SA means "Société Anonyme", which is the French equivalent to "Corp.". So a proper traduction of our name might be "Mathematical Modelling Company, Corp.". Please see our web site in English for further information about our activities :

[http://www.scmsa.eu/accueil\\_e.htm](http://www.scmsa.eu/accueil_e.htm)

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## **Part One**

### **Jobs are disappearing**

## Chapter I

### A fish rots head first

*Our government uses force and cunning  
To silence the father and brainwash the child.  
Victor Hugo: Les Châtiments (Castigations)*

#### I. General comments

Before looking at how the battle against global warming is destroying jobs, we first need to take a brief look at a few mechanisms. They are fairly simple, if you can decipher the economic jargon that tends to be used.

##### A. *Natural job wastage*

The natural development of civilization, mechanization and automation are all reflected in natural job wastage. It is a process that began before the industrial revolution. The car led to the disappearance of the stagecoach, and all the jobs associated with caring for the horses. The automation of subway trains is leading to the disappearance of train drivers. And so on.

Contrary to what we often believe, it is not only low-technology jobs that are affected. Quite the opposite. Let's take a car dealership – Mercedes, for example. In the old days, they had established skills in mechanics, electrics and so forth. Today, all they have to do is plug the car into a diagnostic device, which sends all the necessary information to Stuttgart. The mechanic then receives back an instruction to 'change such and such a part', which he can do immediately, without any understanding of the cause of the problem. Skill is entirely in the hands of a specialist in Stuttgart – the person who designed the diagnostic software.

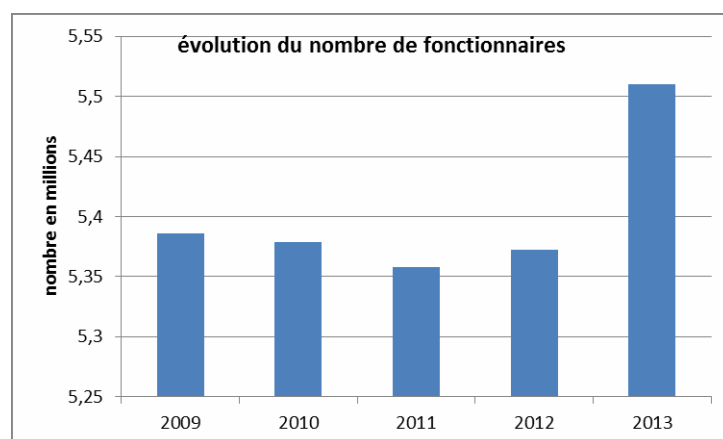
So there is a threat to high-technology jobs as well. The more skilled the work, the more it will draw on information technologies, and the greater will be the risk of the 'dematerialization' of skills. The bigger the company (in this case, Mercedes-Benz), the more means it will have at its disposal to centralize technology and research.

Since very low-technology jobs (such as making clothes) have all been relocated abroad because wage costs are too high in France, a question arises: what is left? Over the years, governments have tried various things, like the Plan Calcul (a French government plan to promote the computer industry, launched in 1966) and Galileo (Europe's global navigation satellite project, launched by the EU in the 2000s but still

not up and running), but they have all failed.

### *B. Public sector jobs*

The French public sector, including local government, has started to grow again after a period of relative stagnation.



*Figure 1. Trend in the number of civil servants from 2009 to 2013*

Key:

nombre en millions	in millions
évolution du nombre de fonctionnaires	trend in the number of civil servants

Source: <http://bfmbusiness.bfmtv.com/france/il-n-y-a-jamais-eu-autant-de-fonctionnaires-en-france-878400.html>

This sector is supposed to provide businesses with the (tangible and intangible) infrastructures that enable them to operate, including roads, electricity, medical care and tax offices. And of course also schools and hospitals and so on.

Permanent growth of the sector, particularly as a result of ‘regionalization’ (which was introduced in 1954), goes hand in hand with increasing inefficiency, which is clearly a source of difficulties for businesses.

People talk about ‘new information technologies’ and speak in terms of milliseconds; but the French State has never taken so long to reach decisions, notify companies when they have won public tenders, or pay its bills. State inefficiency in these areas hampers recruitment. Unable to make the smallest decision, in many spheres (particularly defense), the State issues ‘programming laws’ which are reviewed from year to year. The businesses concerned have no view ahead; all they can do is reduce their output accordingly (12 October 2015: DCNS is looking to cut a thousand jobs; 22 October 2015: same for Air France).

It is not part of our remit in this White Paper to analyze the division of jobs between

the public and private sectors; we shall simply say that the increase in the number of public-sector jobs is not benefiting private companies and is doing nothing to remedy the problems associated with employment.

*C. The State is incapable of devising and implementing an industrial policy*

France has been without an industrial policy for a long time now, despite the fine words of policymakers who say they are going to remedy the situation. The steel industry is disappearing, the automotive industry is suffering, energy production is impossible. We shall be looking at the various sectors later.

Since the nuclear power program (decided in the 1950s) and the TGV (with the C03 project adopted by interministerial committee on 25 March 1971), we can say without any exaggeration that the French State has not launched a single industrial program of any kind. France could very easily have a national energy generation program embracing all forms of energy production, and we could be selling electricity to our neighbors (Germany and Spain in particular). We're doing it already, and exports exist, but they are 'shameful', concealed by energy producers themselves. This is because the official doctrine in France is that consumption has to be reduced and we have to save energy. As a result, any production project comes up against an objector.

Here are two striking examples: the ATMEA nuclear reactor project in the Rhone valley, put forward by GDF-Suez in 2010 (a medium-output 1,000 MW nuclear reactor), and the DCNS 'Flexblue' project for a small off-shore nuclear reactor; both were opposed in principle.

Even the replacement of ageing nuclear power plants is causing problems for policymakers. So far, none of the new EPR projects (new generation of nuclear power plants) has gone into operation. Public pressure is for the closure of old plants, and absolutely against the construction of any new ones.

## **II. A fish rots head first**

It is a well known fact that a fish rots head first, but that the smell spreads in all directions. Decentralization of the French State has led not only to the disappearance of any industrial policy, but also to the appearance of many truly absurd policies. Since the 1970s, France has been full steam ahead on 'sustainable development'. Nobody knows what it means, but nor does anyone seem willing to question a concept that is nonetheless fundamentally unsound.

*A. The fundamental absurdity of the concept of sustainable development*

Imagine a poor woman: she lives alone in the country with her daughter, who is still a child. For 20 years, she scrimps and saves so that she will be able to provide her daughter with a trousseau on her wedding day: lingerie, some beautiful clothes, linen bed sheets. For 20 years, they live a sorry life: not enough food, no heating, no leisure. The mother is proud of the sacrifices she has made, but will her daughter feel the same?

Of course not. She has lived a deprived life and she doesn't like the trousseau because fashions have changed. It would have been better for her mother to provide some creature comforts and let her daughter go out once in a while. Sustainable development is rather like the wedding trousseau: of no use to future generations, it damages present-day lives. It is a fundamentally unsound concept.

The concept first emerged in the 1970s and gradually became the underlying theme of public policies. There is always a ministry of sustainable development, whichever party is in power. Nobody questions the general idea because it seems so appropriate: it is about preserving resources for the future, or rather, to put it the other way around, it is about not thoughtlessly squandering everything too soon.

Running parallel to the rise of sustainable development, we have seen the capacity for initiative shrink throughout the country: the emergence of the 'precautionary principle', the doctrine of 'energy saving', concerns about the state of the planet and, as corollaries, increasing unemployment, economic stagnation and reduced competitiveness. Yet nobody has dared to ask a simple question: is the concept of sustainable development really appropriate?

In fact, it is fundamentally unsound, and not only (as may be the case for certain political or economic doctrines) because it is poorly or inadequately applied. No, it is unsound in itself, leading inevitably to disasters that people are seeing but cannot explain.

Animals eat anything they can get; they put on weight when they find food, and lose it when they do not. It is a law of nature that it will be difficult for human beings to alter.

No civilization before ours has ever observed a principle akin to sustainable development. Civilizations have developed on the basis of the use of available resources: rivers, minerals and arable land. When the resources dry up, civilizations die out or move on.

It is clearly a question of the optimal use of resources: resources are available (be they energy, environmental or human) and we want to make the best possible use of them. But the resources available are not clearly defined. We have no idea, for example, how much oil or gas there is, or what 'biodiversity' or 'water resources' really mean. Rivers flow, whether or not there are human beings around; and species disappear and appear, just as they did in the Tertiary period.

So we don't really know what 'making the best possible use' of resources means. This is where the methodological error is being made: a 'resource' is not a fixed, clearly defined quantity – for example, so many millions of cubic meters of oil – that we need to bequeath to our descendants. On the contrary, oil, gas, uranium and so on are simply 'utilities' that, because of technological progress, we currently know how to put to good use, but which might very well be of no use or value whatsoever to our descendants in one or two hundred years' time, just as horses are no longer particularly useful to us as a resource today.

By bequeathing our 'resources' to our descendants, we are making two big mistakes:

- firstly, we are depriving ourselves of them today, when they are vital for the development of our economies;
- secondly, we are limiting the research capacities of both present and future civilizations: since certain resources are still available, there is no point in looking for others.

In other words, we are doing our descendants very poor service in passing on 'resources' they will not be able to use, just like the old woman who spends her whole life scrimping and saving to provide her daughter with a trousseau she doesn't want.

### *B. The state of the planet*

Many people today are absolutely convinced that the planet is in danger because of us, and that we must, as a matter of urgency, take all sorts of corrective measures, especially saving energy and limiting CO<sub>2</sub> emissions. This doctrine also derives from the concept of 'sustainable development' and the closed world it presumes. In their attempts to evaluate available 'resources', human beings have begun to study the planet and, without understanding anything, have immediately decided that the planet is in danger.

Yet here too the simplest and most obvious historical references demonstrate that this is not at all the case. In the past, Nature has very easily done away with any number of species (whether animals or plants), while the human race has quietly prospered. There are more and more of us, and we are living longer and longer. Until now, the planet has got on very well with the human race; there is nothing to suggest it even knows we are here. In Volume I of this White Paper, we clearly demonstrated, using simple data, that all these measures to 'correct the climate' are both pointless and ineffective.

## **III. It's good for the planet**



As we shall see in detail in the following chapters, for the sake of this one watchword, 'it's good for the planet', leaders (often European, always French) have launched all sorts of far-reaching actions that are confused, contradictory and unjustified, and have been subject to no prior research or in-depth analysis.

None of them has made one jot of difference to the well-being of the planet, which is utterly oblivious to them all. They have all, to varying degrees, contributed to human misery and, in particular, to the appearance of mass unemployment in France.

## Chapter II

### Biofuels

*We shall destroy progress, laws, virtues, rights and talents.  
We shall build ourselves a fort with all the debris,  
And to keep ourselves safe there, like dark dogs,  
We shall unmuzzle howling prejudices.  
Victor Hugo: Les Châtiments (Castigations)*

#### I. An excellent example

Biofuels are a perfect example of an absurd policy in every respect: under the pretext of cutting emissions of greenhouse gases, this policy has in just a few years put hundreds of millions of people below the poverty threshold. In France, the most obvious consequences have been ridiculous taxes and job losses.

We shall give a brief overview here, with technical information being provided later.

#### II. Summary for victims and the poor

In the 2000s, it was decided that the production of ‘green’ fuels would be good for the planet. In practice, this comes down to growing oilseed rape and transforming the oil into ethanol, to be incorporated in ordinary petrol. This is the ‘SP95-E10’ biofuel that we can all buy at the pumps, and we recognize it because the delivery hose is of course green.

So how is this good for the planet? Nobody knows exactly, but we want to reduce consumption of fossil fuels (ordinary oil, which has to be extracted from the ground). Replacing ordinary petrol with an agricultural product has a little bit of the ‘sorcerer’s apprentice’ about it, because we can produce in just one year something that Nature has taken several million years to achieve.

How is this good for cars? It isn’t. Biofuels are less efficient (in energy terms) than ordinary fuels (the usual super unleaded); in other words, you need more biofuel to travel the same distance at the same speed. All other things being equal, a car consumes more SP95-E10 than ordinary super.

As the tax on petroleum products is based on the amount sold, the French State has

enjoyed higher revenues. For the period 2005-2010, the French Audit Office calculates the extra revenue as one and a half million euros – all of which has come out of motorists' pockets, without so much as a by your leave.

To encourage this new industry, the French State has introduced various aids, which obviously come out of ordinary taxes paid by ordinary people. According to the Audit Office, the total cost of these aids is of the order of 2.65 billion euros.

The aim of these aids is to:

- promote the development of biofuel crops by ensuring that sufficient amounts of arable land are turned over to them;
- develop the necessary industrial facilities (to process crops, turn the oil into ethanol, and incorporate it in ordinary petrol).

How was all this decided upon? We'll talk about that later. There is of course a report drawn up by PricewaterhouseCoopers (quoted later), which concludes that it is all good for the planet. PwC had also said that the Galileo project was perfectly economically viable (see our note to the French General Secretariat for National Defense: Galileo – chronicle of a scandal revealed, at:

[http://www.scmsa.eu/archives/SCM\\_SGDN\\_Galileo\\_2002.pdf](http://www.scmsa.eu/archives/SCM_SGDN_Galileo_2002.pdf)).

The results so far:

- For the planet: none.

The planet is completely unaware of what has been happening, and hasn't noticed at all that people are now using green hoses to fill their cars' fuel tanks.

- For the industry thus created: very negative.

Of course, France has found itself in competition with other countries, such as Brazil, which have the means to produce ethanol in much larger quantities and at much lower costs. It was clear from the outset that this initiative had no chance whatsoever of being commercially viable. The industry could only survive thanks to regulations (making it compulsory for oil companies to incorporate ethanol and for motorists to buy it) and subsidies.

- For the human race: tragic!

As areas previously used for growing basic foodstuffs (such as rice) have been reduced worldwide to make room for biofuel crops, the price of basic foodstuffs has soared, putting hundreds of millions of people below the poverty threshold, even in countries that have not previously had any difficulty in feeding the population. The world has seen a rising number of 'food riots' since 2004.

One cannot help but be impressed by the effectiveness of these measures: never in the history of humanity has even the most totalitarian regime managed to do so much harm to so many people in such a short time.

Of course, the lesson has not yet been learned: we still have green petrol hoses, which are good for the planet, and we're still growing biofuel crops.

### III. Technical aspects

#### A. *What is a 'biofuel'?*

According to Wikipedia (French version):

‘A biofuel or agrofuel is a fuel produced using organic, non-fossil materials derived from biomass, which is used with or instead of fossil fuel. There are currently two main industrial branches:

- oil and oil-derived products, such as vegetal bio fuel (VBF) and biodiesel, and also animal fats or various fatty acids (for example, algae);
- alcohol such as bioethanol, produced using sugars, starch, cellulose or hydrolyzed lignin.

‘In 2010, about 43% of oil consumption worldwide was accounted for by the road transport sector, whose consumption of petrol and diesel amounted to a total of approximately 1.77 Gtep (gigatonnes, or billions of metric tons, of petrol equivalent). Biofuels currently account for 57 Mtep (megatonnes, or millions of metric tons, of petrol equivalent), or 3.1% of the global consumption of the road transport sector, with bioethanol accounting for approximately 75% of this, and biodiesel for 25%.’

#### B. *French Audit Office report (2012)*

The best way of understanding what is at stake is to begin by reading the report drawn up by the French Audit Office in 2012. The following passages come from this report.

‘Directive 2009/28/EC of the European Parliament and of the Council on the promotion of the use of energy from renewable sources is one of the directives in the “climate and energy package” adopted under the French Presidency of the European Union in December 2008.

[...]

‘The biofuel support policy of 2005 rested, during the period 2005-2010, on the combined use of four instruments that the Audit Office finds to be partially inconsistent and redundant.

'The increasing aim of incorporating biofuels in fossil fuels for road transport alone, as a positive gesture, was decided in 2005 on the basis of unrealistic expectations: set at 7% by LHV (lower heat value) as of 2010, the incorporation rate is not compatible either with quality standard maximums for petrol (10% by volume) and diesel (7% by volume), or with the reality of distribution networks, or the strategy of oil producers and vehicle manufacturers.

'The Audit Office has calculated that, over the period 2005-2010, total fiscal costs amounted to 2.65 billion euros – 0.85 billion euros for ethanol and 1.8 billion euros for biodiesel. This expenditure came under authorizations granted to production units.

'The Audit Office considers that, during this period, the main French producer of biodiesel, which held a near monopoly until 2008, enjoyed unwarranted earnings and a windfall effect amounting to a gain of 0.5 billion euros.

'Border protection, more apparent than real, has to be reinforced at European level because French production is at risk of being increasingly exposed to competition from other producer countries which have also introduced policies to support their own production.

'Because of the lower energy output of biofuels (68% and 92% respectively by comparison with the petrol and diesel in which they are incorporated), State revenue increases automatically because consumption is higher for the same travelling distance and because taxation is based on volume: in the case of ethanol, 1.0 billion euros over the period 2005-2010 (by comparison with the 0.85 billion of tax exemptions), and 260 million euros a year since 2011. This means that bioethanol is a net earner for the State. In the case of biodiesel, the figures are: 0.47 billion euros more tax revenue for the State over the period 2005-2010 (against tax exemptions of 1.8 billion euros), and 143 million euros in 2011.

'Most of the fiscal costs have been borne by the consumer. In the case of ethanol, consumers have paid 1.54 billion euros in taxes and higher consumption, and 0.32 billion euros in TGAP (general tax on polluting activities) passed on to them, which is a total of 1.86 billion euros. The figures for biodiesel are 0.9 billion euros in taxes and higher consumption, and 0.01 billion euros in TGAP passed on to them, which is a total of 1.1 billion euros.

'The finding is that after 15 years of policies in favor of biofuels, with intensified commitment to biofuels in the last six:

- the only equilibrium that has really been changed by these policies has been agricultural (growing of oilseed rape, production of cooking oil and rapeseed cake, new markets for beet);
- no other equilibrium, whether energy independence or the reduction of greenhouse

gas emissions, has been altered a great deal, if at all.

‘Recommendation: recognize that the French authorities’ desire to be more ambitious than their European partners has resulted in incoherent objectives which are now making it impossible to meet the targets for incorporating biofuels into fossil fuels.’

Source: French Audit Office, ‘Biofuel support policy’, 24 January 2012.

Link: <https://www.ccomptes.fr/Publications/Publications/La-politique-d-aide-aux-biocarburants>

### *C. Preliminary reports*

Now let us take a look at how we reached this point.

A report entitled, ‘Energy and greenhouse gas balances of the biofuel production industries in France’ (2002), signed by ADEME (French Environment and Energy Management Agency), DIREM (French Directorate for Energy and Mineral Resources) and Ecobilan (a subsidiary of PricewaterhouseCoopers) stated the following:

(see in particular <http://www.developpement-durable.gouv.fr/IMG/pdf/ecobilan-synthese.pdf>)

‘Susceptibility testing shows that hypotheses concerning accounting for carbon storage in soils during the agricultural stage and concerning N<sub>2</sub>O emissions at plot level have a significant impact on greenhouse gas balances.

‘A study of possible future scenarios, up to the year 2009, points to strong potential for improvement in the wheat and beet sectors (particularly for the production of ethanol), as regards both the energy balance and the greenhouse gas emissions balance.

‘In terms of greenhouse gas balance, the biofuel production industries also have a significant advantage over the fossil fuel industries.

‘In fact, the impact of the petrol production industry on the greenhouse effect is about 2.5 times greater than that of the ethanol production industries, on the hypothesis of total fuel combustion, which translates into a gain of approximately 2.7 TEQ CO<sub>2</sub>/t for the current scenario. The diesel industry’s greenhouse gas balance is some five times greater than that of the vegetable oil industries, which is a gain of about 2.8 TEQ CO<sub>2</sub>/t, and 3.5 times greater than that of the VOME (vegetable oil methyl esters) industries, which is a gain of 2.5 TEQ CO<sub>2</sub>/t.’

In 2006, the work conducted by Ecobilan was judged to be excellent by ADEME. See: [http://www.ademe.fr/sites/default/files/assets/documents/41339\\_comparatifacv.pdf](http://www.ademe.fr/sites/default/files/assets/documents/41339_comparatifacv.pdf)

If one quietly rereads this report, one realizes how grotesque it is. Its discussion of greenhouse gas balances is nebulous (referring to ‘susceptibility testing’, which is meaningless yet gives the impression of a scientific approach), and completely ignores the economic aspects and even the matter of efficient usage. It’s good for the planet,

and that is that; no further discussion is required.

We shall now look at an industrial development project in the biofuel industry.

#### *D. The Futurol project (2008)*

The project is described as follows.

‘Sustainable mobility is a vital challenge for the years ahead in a rapidly changing environmental and energy context.

‘It is crucial for greenhouse gas emissions to be reduced, especially in the transport sector. Biofuels could have a part to play in meeting these new challenges.

‘The aim of the Futurol project is to develop and market a process, technologies and products (enzymes and yeasts) so that second-generation bioethanol can be produced using not only whole plants especially grown for the purpose but also agricultural and forestry by-products, green waste and other forms of lignocellulosic biomass.

‘This project is part of a sustainable development approach throughout the production chain, from field to wheel.

‘Supported by OSEO (French agency promoting SMEs and innovation) and accredited by the Industry and Agro-Resources Competitiveness Cluster, the Futurol project has a budget of more than 76.4 million euros. The project partners (11 leaders in R&D, industry and finance) have come together to set up a structure called Procethol 2G, which is dedicated to this project.

‘Over a period of eight years, the project will develop a pilot scheme and then a prototype, as well as working on R&D. The pilot plant is located at the Pomacle-Bazancourt agro-industrial site in Marne.’

The approach is the same as in the ADEME report: cutting greenhouse gas emissions is presented as ‘crucial’. Nothing else matters; nothing else will be considered.

The production of bioethanol in France was seen as an opportunity to be seized.

Source: IFP, ‘The Futurol project: launching of an R&D project for second-generation bioethanol’, 11 September 2008.

Link: <http://www.ifpenergiesnouvelles.fr/Actualites/Communiqués-de-presse/Projet-Futurol>

Source: Futurol project, ‘The project’.

Link: [http://www.projetfuturol.com/Le-Projet\\_a21.html](http://www.projetfuturol.com/Le-Projet_a21.html)

### *E. French production of bioethanol*

Here are some extracts from the article referenced below.

‘There are 15 bioethanol production plants in France, including 13 distilleries with five new high-capacity factories. Some 11.6 million hectoliters of bioethanol were produced in France in 2010-2011, and 12.5 million hectoliters in 2011-2012.

‘In 2011, France produced about 25%, or 12 million hectoliters, of European ethanol biofuel. In 2013, SP95-E10 (up to 10% bioethanol, and usually between 7% and 8%) accounted for 29% of the petrol market. Sold at an average of five cents less than SP95, bioethanol is sold by 40% of French fuel stations, and 90% of vehicles in France, including all vehicles manufactured since the year 2000, are compatible with this fuel.

‘Sales of superethanol-E85, which contains 65-85% bioethanol, are 8% higher than in 2012, with sales of 75,000 m<sup>3</sup>. Superethanol was available at 363 French fuel stations in January 2014, and there are 30,000 flexfuel vehicles in France.

‘Of the 2011 harvest, 2.18 million metric tons of cereals were turned into bioethanol, representing 3.4% of total cereal production. French production of alcohol from beet for the year 2007/2008 reached a total of nine million hectoliters, including approximately 6.5 million hectoliters of ethanol. In 2005, 30 million hectares of France’s total surface area of 55 million hectares were used for agricultural purposes.

‘The European Environment Agency estimated that France would need to use 0.5 million hectares of its agricultural land to produce biofuels in 2010, and one million hectares in 2020. In 2011, once account had been taken of co-products used as animal feed, less than 0.7% of France’s agricultural land was used for the production of bioethanol.

‘In the UK, however, Goldman Sachs estimated, in 2009, that a quarter of the country’s arable land would have to be turned over to the production of biofuels if 2010 objectives were to be reached.

‘Bioethanol is a major advantage for employment and economic activity in France. The French bioethanol industry accounted for 8,900 jobs and 815 million euros of added value in 2010 (according to the most recent public accounting figures in early 2013), according to a study of the economic weight of the biofuels industry in France conducted by PricewaterhouseCoopers (PwC). Employment breakdown:

- 4,500 direct jobs in seed production, agriculture, processing of crops into bioethanol and transport to oil depots;
- 1,500 indirect jobs created by industry purchases from other economic sectors;



- 2,900 related jobs dependent on expenditure by the industry's employees and suppliers.

'With bioethanol production of a little less than 12 million hectoliters in 2010, the French industry generated total added value (direct, indirect and related) of 815 million euros, including 345 million euros of direct added value, thus also making a significant contribution to France's trade balance.

'The net fiscal balance of the bioethanol industry for 2010 was positive at 305 million euros. If account is taken of the trend in aid and taxes, this balance will be higher in 2011, reaching an estimated 378 million euros.

'The estimates for 2011 take account of the various taxes and dues paid by the players in the industry (corporate income tax, local business tax, etc), with the amount estimated at 104 million euros; TGAP (general tax on polluting activities) at an estimated 149 million euros; and additional TICPE (domestic tax on petroleum products) and VAT at an estimated 125 million euros. In fact, because of its lower energy density, bioethanol is taxed more highly per unit of energy than petrol is, which automatically generates a net surplus in TICPE and VAT, estimated at 92 million euros in 2010 and 125 million euros in 2011.

'Ethanol is produced in France using beet, wheat and, to a lesser extent, corn. In 2010, France had almost reached its objective of an average incorporation rate of 7% biofuel, for both ethanol in petrol and biodiesel in diesel.

'In 2009, France was still the main European producer, with an output of 1,250 million liters, which represented an increase of 25% over the 2008 figure (1,000 million liters).

'Corn is the raw material most commonly used to produce ethanol. With the explosion of demand for ethanol, the amount of corn available for animal and human foodstuffs is falling, which means that the price of corn is rising: +67% predicted in 2007.

'In 2006, France produced 197.5 million kilos of ethanol.

'Use of pure or very high concentration ethanol requires vehicles to be especial adapted, which means that it is generally used in a mixture at relatively low concentrations of between 5% and 10%.'

Source: Planétoscope, 'Production of bioethanol in France'.

Link: <http://www.planetoscope.com/biocarburants/1610-production-de-bioethanol-en-france.html>

## *F. The end of a dream*

Back in March 2008, we wrote in our Letter No 41:

'In order to save the planet, some good souls have developed "biofuels", whose purpose

is to replace oil. The Framework Law on Energy of July 2005 confirmed France's commitment to the objectives set by the European Union (2% by the end of 2005, and 5.75% by the end of 2010) and, in September 2005, the French Prime Minister, Jean-Pierre Raffarin, announced the government's intention to move ahead more quickly: 5.75% by 2008, 7% in 2010 and 10% in 2015. It was, as usual, a question of being more virtuous than anyone else.

'These biofuels are made using soya, whose price has soared, leading to price increases for all other basic foods (flour, oils, etc), for which crop areas have been reduced. The result is that poor countries are now paying 35% more for their food (Financial Times, 25 February 2008) and the UN is planning to cut its food aid program because of a lack of funds. Some countries (such as Egypt and Pakistan) have reintroduced ration books. Hundreds of millions of people will die of hunger, but the planet will obviously be better off.

'General Henri Marescaux, a former major-general in the French army, made the following comment: "in the old days, armies burned crops to starve people out. Now the crops are being burned in rich people's cars. The result is the same: hunger for the poor!"'

In 2012, the following comments could be read on various internet sites.

'The future of biofuels is looking less bright. In March, Europe quietly acknowledged that their environmental impact is not neutral and that they are not proving to be competitive. It is a setback for biofuels, which were being presented as an important source of green energy that could help us to achieve our objectives in this area between now and 2020.

'The end of aid for biofuels, the end of an industry?

'If aids are called into question, the industry is at severe risk of sinking. And this is precisely what might happen, if we are to believe the criticisms made by the French Audit Office in January, which criticized the opacity of the aid system and the distortion of biofuels' energy balance.

'Three billion euros of tax aid... paid for by motorists.

'According to the French Audit Office, the biofuels industry benefited from three billion euros of funding between 2005 and 2010, all paid for by motorists, most of whom were unaware of the fact. All "normal" fuels have to contain a certain percentage of biofuel. This is known as the "incorporation rate", which tends to increase over time, just as do the tax exemptions granted to producers.

'The use of biofuels under the incorporation policy has the effect of increasing vehicles' fuel consumption: because biofuels are less energy efficient, you need more of them to travel the same distance. So people use more fuel and pay more tax!

‘To put it simply, producers, distributors and the State are all enjoying higher revenues because of this hidden tax on the (bio)fuel we use.

‘Biofuels – illusory objectives?

‘In 2007, the European Environment Agency estimated that France would have to dedicate 0.5 million hectares of agricultural land to biofuels in 2010, and a million hectares in 2020. In the UK, however, Goldman Sachs estimated that a quarter of the country’s arable land would have to be turned over to biofuel crops if 2010 objectives were to be reached. In the US, George Bush announced the aim to produce 15% of fuel for vehicles in the form of biofuels, and production exploded. The US even announced a tax to slow imports of Brazilian ethanol to promote domestic production, essentially using corn.

‘Subsidies for agrofuel producers are failing to relaunch an industry that is dead on its feet.

‘There are thousands of agrofuel producers and they all, particularly the major ones, benefit from subsidies. Producers are often backed by cooperative groups (such as Tereos and Cristalunion) or by agro-industry groups (such as Sofiprotéol and Saria), which collaborate with thousands of small producers. Despite this, production of agrofuels, which multiplied by six between 2004 and 2008, has virtually stagnated since then. Why the sudden standstill?

‘Firstly, we cannot add any more biofuels to petrol or diesel without reducing the efficiency of fuel and normal engines. Flexfuel engines, which run just as well on ethanol as on normal petrol, are very few and far between.

‘Secondly, consumption of fuels by volume falls when prices rise.

‘Lastly, aid for biofuels is falling, as are other aids for green energies (such as photovoltaics). Between 2006 and 2011, the aid granted to producers per hectoliter fell from 33 euros to 14 for ethanol, and from 25 euros to 8 for biodiesel. It is now highly likely that the French State will follow the Audit Office’s recommendations and reduce, or even totally withdraw, subsidies for the industry between now and 2015.

‘As a result of this fiscal instability and other factors, producers and processors who have invested in agrofuels are in a very bad position to face four adverse trends: stabilization of sales, disappearance of subsidies, higher supply costs, and greater competition from biofuels imported from the US. It is not hard to understand why the 15,000 jobs in the industry are under threat.’

Source: Consoglobe, ‘Why green fuels are off to a bad start’, 3 July 2012.

Link: <http://www.consoglobe.com/pourquoi-carburants-verts-mal-partis-cg>

The following can be read on the French Ecology Ministry's website.

'Partial tax exemptions for biofuels in France  
7 July 2011 (updated 22 October 2013)

'Ethanol incorporated into petrol either in its pure form or in the form of ethyl tertiary butyl ether (ETBE) and vegetable oil methyl esters (VOMEs) incorporated in diesel are subject to a reduction in tax (tax exemption).

'Since 2006, vegetable oil ethyl esters (VOEEs), animal oil methyl esters (AOMEs), waste cooking oil methyl esters (WCOMEs) and synthetic biodiesel have also been subject to tax exemptions.

'These exemptions are granted to biofuels produced by units that have been authorized following a community tender procedure, with the amounts set by the authorization. These tax exemptions amounted to the totals given in Table 1 below (without taking account of the effects of additional consumption linked to the lower energy output of biofuels).

2006	2007	2008	2009	2010	2011	2012
260 M€	500 M€	720M€	521 M€	425 M€	271 M€	288 M€

*Table 1. Total tax exemptions granted to biofuels between 2006 and 2012*

'These tax exemptions are in accordance with European Directive No 2003/96/EC on energy taxation, which allows Member States to have a special tax regime for biofuels to encourage their development and promotion. This tax measure has allowed significant development of the production and marketing of biofuels.

'Exemption rates (reduction in euros per hectoliter) up to the year 2013 are expected to be as shown in Table 2 below.'

€/hl	2007	2008	2009	2010	2011	2012	2013
ETBE	33	27	21	18	14	14	14
Ethanol	33	27	21	18	14	14	14
Biodiesel	25	22	15	11	8	8	8
VOEE	30	27	21	18	14	14	14
AOME and WCOME	25	22	15	11	8	8	8
Synthetic biodiesel	25	22	15	11	8	8	8

*Table 2. Tax exemption rates (in €/hl) between 2007 and 2013*

## **IV. Conclusion: Nuremberg after Grenelle**

It is difficult to do so much harm in such a short space of time. The real question is

this: how have policymakers managed to make such absurd decisions, to blinker themselves to such a degree, when so many means of scientific investigation are available? The answer is simple: as soon as something is seen as being green, as being good for the planet, all discussion comes to an end and any scientific analysis becomes pointless or counterproductive. The policymakers will not listen to anyone or anything; they take all sorts of hasty, contradictory, damaging and absurd decisions. When will they finally be held to account? When will Nuremberg take the place of Grenelle?

You would think that the people responsible for these disasters would feel ashamed, would show some regret, would at least acknowledge their mistakes. But not at all! Arrogant and formidable, they continue to thrive and command respect, as we shall see.

## Chapter III

### Decisions that damage employment

#### I. Agenda 21

Agenda 21 is an action plan for the twenty-first century adopted by 192 heads of state at the Earth Summit in Rio de Janeiro in 1992. (Wikipedia (French version)) It includes in particular:

- Chapter 9: Protection of the atmosphere;
- Chapter 17: Protection of the oceans and all kinds of seas;
- and numerous ‘environmentally rational management plans’, for whose sake all manner of abuse becomes possible.

One might very well suspect that a program of any kind adopted by 192 heads of state would be nothing more than a web of banalities, especially if it is presented as an ‘Earth Summit’. Indeed, the following is to be found on the French Audit Office’s website.

‘On 25 September 2014, following an investigation conducted jointly by the Audit Office and five regional audit offices, the Audit Office published a summary judgment by its First President of the policy to promote Agenda 21 activities at local level. Prompted by the 1992 ‘Earth Summit’ in Rio de Janeiro, local Agenda 21 activities are part of the Action 21 program adopted by the UN the same year. Based on voluntary programs conducted by local authorities, these activities have played a role in promoting awareness of the challenges of sustainable development. At the end of its investigation, the Audit Office issued a mixed assessment of the results achieved and suggested a complete overhaul of the recognition mechanism being applied by the Ministry for the Ecology, Sustainable Development and Energy.

- A mixed assessment on both the quantitative and qualitative levels: [...] quantitatively, the number of local Agenda 21 actions currently underway, by comparison with the number of local authorities potentially involved, seems modest, particularly if one compares it with the numbers in neighboring countries (especially Germany, the UK and the Scandinavian countries). On the qualitative level, the analysis of thirty or so local Agenda 21 actions conducted by five regional audit offices points to a great disparity in method and content, the inadequacy of associated information systems, and the frequent lack of any indicators of results or any financial assessment of effects, whether before or after the event [...].

- A recognition mechanism that needs to be reconsidered in the light of the Grenelle Acts: in the circumstances, the State has an opportunity to pursue its policy to promote this mechanism while taking full account of the fact that the legislative and regulatory context as regards the environment and sustainable development has changed significantly since the adoption of the Environment Charter and the Grenelle Acts [...].
- The need to update the remit and promote intermunicipal projects: the need for projects to be coherent argues in favor of choosing an appropriate geographical boundary for local Agenda 21 activities, which the Audit Office thinks should be intermunicipal because of the many issues that need to be addressed, particularly the management of space, housing, transport and energy [...].

The Audit Office document ends with a recommendation addressed to the minister responsible for the environment:

‘Put an end to the current mechanism for recognizing local Agenda 21 activities and, where appropriate, redirect the resources currently spent on it to monitoring reporting obligations under the decree of 17 June 2011; failing this, if the current mechanism is retained, be more selective in choosing approved Agenda 21 activities, retaining only exemplary projects accompanied by a schedule and specific financial undertakings, embracing at least the geographical area covered by a public intermunicipal cooperation body (EPCI) and complying with Article L. 110-1 of the Environment Code.’

Source: French Audit Office, ‘Ref. No. 70375: Policy to promote local Agenda 21 activities.’

Link: <https://www.ccomptes.fr/Publications/Publications/La-politique-de-promotion-des-agendas-21-locaux>

## II. The Grenelle Environment Round Table

According to Wikipedia (French version):

‘The Grenelle Environment Round Table was a series of policy meetings held in France in September and December 2007, the aim being to reach long-term decisions concerning the environment and sustainable development, especially to restore biodiversity by establishing a green and blue belt and environmentally coherent regional schemes, whilst also reducing greenhouse gas emissions and improving energy efficiency. Launched on the initiative of President Nicholas Sarkozy following commitments made during the 2007 election campaign, the Grenelle Environment Round Table is led mainly by the French Ecology Minister, Jean-Louis Borloo.

‘Despite some progress, particularly in terms of a method that successfully brought together stakeholders with sometimes diametrically opposed views on environmental issues and led to an almost unanimous parliamentary vote in favor of the ‘Grenelle I

Act', the Grenelle Environment Round Table was, even before its conclusion, the target of some virulent criticism from environmental and left-wing groups. Criticisms concerned, for example, the abandonment of some flagship measures and the choices made when it came to the Grenelle II Act implementing the decisions made by the Round Table. The Nicolas-Hulot Foundation, whose Ecological Pact was significant in launching the Grenelle Environment Round Table, left the negotiating table in March 2010 when the carbon tax was abandoned. The Round Table was also strongly criticized for failing to tackle the question of nuclear energy.'

Source: Wikipedia (French version), 'Grenelle Environment Round Table'.

Link: [https://fr.wikipedia.org/wiki/Grenelle\\_Environnement](https://fr.wikipedia.org/wiki/Grenelle_Environnement)

In fact, the Grenelle Environment Round Table marks a very important turning point in the history of rational thought in France.

Before Grenelle, the final judge of any theory was deemed to be observation, data, experiments. You had a theory, you conducted experiments, and if the experiments contradicted the theory, then the theory was altered or abandoned.

This meant it was necessary to submit any theory on any subject whatsoever to experimental evidence. If this did not happen, then the theory was merely a hypothesis, and one does not take decisions on the basis of hypotheses.

Grenelle changed all of this. On any subject, and especially scientific subjects linked to the environment, the aim now is to achieve a consensus: a consensus of policymakers, users, citizens, groups and so on. Research and the use of data have become not only pointless but a downright nuisance. As soon as a consensus has been reached, laws and regulations can be passed without any other form of investigation taking place.

Of course, it is very easy to raise a consensus on environmental issues: you just have to tell people that the planet is in danger. They will believe you, and the new system will make any decision, even the most arbitrary, possible.

We saw a perfect illustration of this in Volume I of this White Paper. Let's look at the official figures on global temperatures, as published by the NOAA. The figures show no global warming. But who cares about the figures! We don't even need to look at them, because there is a consensus that global warming exists.

We can say without any exaggeration that, because of the decision-making method it set in place, the Grenelle Environment Round Table has taken us back to pre-Enlightenment days. We have entered an era of obscurantism, and also of course a dark age, because we can no longer enlighten or illuminate ourselves (or our homes, offices or public spaces) as we please.

In 2011, four years after the launching of the Grenelle Environment Round Table, the French Audit Office assessed its budgetary and fiscal impact. Below are a few excerpts from the Audit Office's Summary Report No. 2011-474-3 of 3 November 2011.



– Contained budgetary cost:

‘The State’s three-year budget for the period 2009-2011 made provision to spend 4.5 billion euros on Grenelle. Actual expenditure eventually amounted to only 3.5 billion euros: 429 million euros on additional appropriations, 928 million euros on budget reallocations, and 2,189 million euros of tax exemptions for operators [...].

– Unbalanced fiscal dimension:

‘In contrast, the fiscal dimension was far less well managed. Tax receipts as a result of Grenelle amounted to just 1.37 billion euros, whereas fiscal expenditure cost 1.9 billion euros and the vehicle bonus scheme cost 1.95 billion euros. This means that the fiscal dimension of Grenelle represented a total cost of 2.5 billion euros for the State, when it should have been balanced from the outset [...]. The vehicle bonus-malus scheme thus cost 1.5 billion euros between 2008 and 2011, and the results are varied. It made it possible to cut the average carbon gas emissions of new vehicles, but studies have shown that it has led to a rise in total CO<sub>2</sub> emissions. Also, this measure focuses solely on the aim of reducing carbon gas emissions, without taking account of emissions of other health-threatening pollutants [...].

– Promising results in the construction and renewable energy industries:

‘The mobilization of civil society, the introduction of very powerful fiscal mechanisms and community pressure have made it possible to achieve some good results in the construction industry, the renewable energy industry and water policy [...]. As regards old buildings, tax credits and eco-loans have already made it possible to cut theoretical greenhouse gas emissions in the housing sector by almost 7.5% in two years. However, because of the way in which they are now calibrated, and despite their cost (1.78 billion euros), they are not enough in themselves to achieve the aim of cutting the energy consumption of the housing stock by 38% by 2020. Similarly, the production of renewable energy has developed very rapidly since 2007, and the intermediate objective set for 2012 (14% renewables) should be achieved without difficulty.

– Impossible to achieve the 2012 objectives set by Grenelle for transport and agriculture:

‘Conversely, in the transport sector and agriculture, it will be impossible to achieve the objectives set by Grenelle for 2012, both because the resources allocated to these policies are inadequate in relation to the hoped-for results, and because a fiscal policy and regulatory provisions that contradict the objectives have been maintained [...].’

Source: French Audit Office, ‘Summary report No. 2011-474-3 of 3 November 2011: The budgetary and fiscal impact of the Grenelle Environment Round Table’.

Link: [https://www.ccomptes.fr/content/download/1805/18097/file/Synthese\\_grenelle\\_environ-nement.pdf](https://www.ccomptes.fr/content/download/1805/18097/file/Synthese_grenelle_environ-nement.pdf)

### **III. The climate and energy package**

#### *A. Presentation*

We shall now provide a general picture of the climate and energy package. Further details can be found at:

Source: Wikipedia (French version), 'Climate and energy package'.

Link: [https://fr.wikipedia.org/wiki/Paquet\\_climat-%C3%A9nergie](https://fr.wikipedia.org/wiki/Paquet_climat-%C3%A9nergie)

#### **1. History**

The European Union's climate and energy package (or energy and climate package) or climate plan is an action plan that was adopted in December 2008 and revised by the European Union in October 2014.

At the end of 2008, this 'legislative package' was the subject of a policy agreement between the 27 heads of state and government (at the European Council meeting in Brussels on 11 and 12 December 2008) and was immediately adopted by the European Parliament and Council of Ministers in December 2008.

In 2012, the European Parliament wanted, simultaneously and in order to facilitate implementation of the package, to develop a coherent, decentralized network of renewable energy sources and means of transport, which could, in particular, serve as a foundation for a 'third industrial revolution' (as promoted by Jeremy Rifkin).

In 2014, the European Commission adopted a new set of guidelines for energy and climate policies to strengthen the existing framework, but without any great ambition, according to many commentators, particularly given the absence of any binding objectives concerning natural and renewable energies and energy efficiency.

#### **2. Objectives and content**

This legislative package has two priorities:

- to introduce a more sustainable and enduring common European energy policy;
- to combat climate change.

The aim of the 2008 climate and energy package is to make it possible to achieve the '20-20-20' or '3x20' objective, which is:

- to ensure that renewable energies account for 20% of Europe's energy mix;

- to cut EU Member States' CO<sub>2</sub> emissions by 20%;
- to improve energy efficiency by 20% by the year 2020.

While the first two measures are binding, the third does not, as yet, have any legal force.

In Europe in 2008, just 8.5% of energy consumption was met by renewable and clean sources. This meant these resources had to be increased by 11.5 percentage points by the year 2020, which should shift them from marginal status to widespread, industrial status.

The 2014 climate and energy package sets some new objectives for 2030:

- 40% reduction in greenhouse gas emissions in relation to 1990 (the only binding objective);
- 27% renewable energies in the energy mix;
- 27% energy savings.

### **3. Content**

The climate and energy package introduces binding provisions concerning two of the three objectives the European Union set itself for 2020 at the European Council meeting of March 2007:

- The Renewable Energy Sources Directive, No. 2009/28/EC, sets objectives for each Member State as regards the share of renewable energies in final energy consumption. It also sets out that, in each Member State, at least 10% of the energy used by the transport sector should be produced using renewable sources;
- Decision No. 406/2009/EC sets objectives for limiting emissions of greenhouse gases in each Member State, in relation to 2005 levels. These objectives are negative for some Member States (reduced emissions) and positive for others (limited increase in emissions for Member States which are expected to see significant economic growth in order to catch up with the European Union's most advanced countries).

The climate and energy package also aims to improve and expand the CO<sub>2</sub> quota trading scheme, by strengthening its field of application, enhancing monitoring procedures and increasing the cost to polluters. However, although the Commission wanted energy producers to be obliged to purchase 100% of their CO<sub>2</sub> quotas by auction by 2013, the actual figure was 30%.

## IV. Critical analysis

Between 1992 and 2014, not a single lesson was learned from earlier failures and absurdities. The most ridiculous objectives are the ones that are being raised. The Member States now have to cut their greenhouse gas emissions by 40%, in relation to 1990 levels. This reduction is pointless: the planet has never asked for it, is completely unaware of it, and will never notice it! By contrast, the measures that are being taken are directly damaging to the French economy, and especially to employment, for some very simple reasons.

In order to limit their greenhouse gas emissions, industrialists will be tempted to relocate their activities to more clement climates, that is, to countries whose legislation is more tolerant. Manufacturing processes will be less clean than they are in France, so global emissions of greenhouse gases will increase, and we shall have lost the associated jobs.

In France itself, industrialists and mere citizens are going to have to limit their activities, that is, their energy consumption, to comply with the imposed restrictions. This will be done using various tax incentives (bonus-malus schemes), awareness campaigns and so on.

In other words, a goodly number of French citizens are now utterly convinced that it is a good thing for them to limit their energy consumption (including transport) and that this is good for the planet: a worrying absurdity. As domestic consumption falls, so unemployment takes hold.

It is still possible to export, but here too, politically correct restrictions apply. France is in a position to produce and export more energy, but it is not politically correct: the only acceptable doctrine is to save energy, and energy cannot, of course, be exported to countries which have retained a degree of good sense.

## Chapter IV

### The transport sector

#### I. Road infrastructures

The French Government's clear policy is to cut the amount of funding spent on road infrastructures. The annual performance plan, 'PLF 2015 – Extract from the budgetary blue paper on the environment and sustainable development and mobility' includes 'Program 207: Transport infrastructures and services' and reads as follows.

'Optimize the transport system in order to limit as far as possible the creation of new infrastructures, examining the best way of meeting people's mobility requirements and the transport requirements of hauliers.

'Optimal use of existing infrastructures to serve the country, particularly by more effective use, better maintenance and a more selective choice of projects, with a view to improving safety, protecting the environment and reducing geographical "fracturing".

'Redeployment of road transport resources, with funding being channeled into rail, port and inland waterway infrastructures.

'Objective 3: improve the regulation of road transport and develop the transport share of alternative means.

##### '3.1. Modal share of non-road means of transport

This indicator makes it possible to measure the result achieved each year as regards the modal share of public passenger transport (both urban and inter-urban) on the one hand, and goods transport by rail and waterways on the other. It also makes it possible to assess, in concrete terms, the gradual shifting of goods transport away from the roads and onto railways and waterways.

'As regards urban transport, the development of exclusive lane public transport is, as in previous years, one of the major focuses of the sustainable mobility policy being implemented by the State in partnership with local authorities.'

Source: Annual performance plan, 'PLF 2015 – Extract from the budgetary blue paper on the environment and sustainable development and mobility'; 'Program 207: Transport infrastructures and services', 7 October 2014, 89 pages.

Link:

[http://www.performance-publique.budget.gouv.fr/sites/performance\\_publique/files/farandole/ressources/2015/pap/pdf/DBGPGMPGM203.pdf](http://www.performance-publique.budget.gouv.fr/sites/performance_publique/files/farandole/ressources/2015/pap/pdf/DBGPGMPGM203.pdf)

The condition of the French road network is deteriorating:

**INDICATEUR 2.2 : Etat des réseaux routier, ferroviaire et fluvial**

(du point de vue de l'usager)

	Unité	2012 Réalisation	2013 Réalisation	2014 Prévision PAP 2014	2014 Prévision actualisée	2015 Prévision	2017 Cible
Etat des structures de chaussées sur le réseau routier non concédé (pourcentage en surface de chaussées dont la note est satisfaisante)	%	85	84,5	84	84,0	84,0	>85,0
Etat des structures de chaussées sur le réseau routier non concédé (moyenne des notes IQRN)	note/20	16,4	16,2	16,5	16,1	16,0	>15,8
Etat des ouvrages d'art sur le réseau routier non concédé	%	88,1	88,3	87,5	88,0	87,5	>87,0

*Table 1. Condition of road, rail and waterway networks*

Key:

INDICATEUR 2.2 : Etat des réseaux routier, ferroviaire et fluvial (du point de vue de l'usager)	INDICATOR 2.2. Condition of road, rail and waterway networks (from user's viewpoint)
Unité	Unit
2012 Réalisation	2012 Actual condition
2013 Réalisation	2013 Actual condition
2014 Prévision PAP 2014	2014 APP forecast 2014
2014 Prévision actualisée	2014 Update forecast
2015 Prévision	2015 Forecast
2017 Cible	2017 Target
Etat des structures de chaussées sur le réseau routier non concédé (pourcentage en surface de chaussées dont la note est satisfaisante)	Condition of road surfaces in the publicly managed road network (percentage whose condition is satisfactory)
Etat des structures de chaussées sur le réseau routier non concédé (moyenne des notes IQRN)	Condition of road surfaces in the publicly managed road network (average IQRN score)
Etat des ouvrages d'art sur le réseau routier non concédé	Condition of artworks on the publicly managed road network

Despite the declared aim of increasing use of public transport, its share is falling:

**INDICATEUR 3.1 : Part modale des transports non routiers**

(du point de vue du citoyen)

indicateur de la mission

	Unité	2012 Réalisation	2013 Réalisation	2014 Prévision PAP 2014	2014 Prévision actualisée	2015 Prévision	2017 Cible
Part modale des transports collectifs terrestres dans l'ensemble des transports intérieurs de voyageurs	%	16,1	16,0	16,7	16,3	16,6	>17,2

*Table 2. Modal share of non-road transport*

Key:

INDICATEUR 3.1 : Part modale des transports non routiers (du point de vue du citoyen)	INDICATOR 3.1. Modal share of non-road transport (from user's viewpoint)
Indicateur de la mission	Mission indicator
Unité	Unit
2012 Réalisation	2012 Actual condition
2013 Réalisation	2013 Actual condition
2014 Prévision PAP 2014	2014 APP forecast 2014
2014 Prévision actualisée	2014 Update forecast
2015 Prévision	2015 Forecast
2017 Cible	2017 Target
Part modale des transports collectifs terrestres dans l'ensemble des transports intérieurs de voyageurs	Modal share of land-based public transport as part of all domestic passenger transport

The French State happily continues to announce absurd objectives: the share of public transport fell from 16.1% in 2012 to 16% in 2013 – why would it suddenly go up to 16.7% in 2014?

The condition of France's road infrastructures is constantly deteriorating.

'Since 2009, the funding available to the French Transport Infrastructures Funding Agency have fallen from 739.5 million euros to 604.5 million euros, which is a drop of nearly 13.4% in two years. A comparison of funding linked strictly to road maintenance and usage in 2010 and 2011 shows a drop of 25% in road maintenance funds and almost 30% in funds for surfacing work.

'Response of the Secretary of State responsible for housing, published in the Official Journal of the French Senate of 6 April 2011 – page 2400:

'Mr Yves Daudigny. Mr President, Secretary of State, colleagues, our roads are still the main channel of mobility for our citizens and still account for 90% of passenger transport and 88% of goods transport.

'However, funding for the maintenance of our national road network is constantly falling, even though the national transport infrastructure (SNIT) plan presented last January stated that 16% of surfaces are in poor condition and that no less than 120 million euros extra per year would be required for seven years to catch up with necessary maintenance work, plus another 10 million euros a year for artworks.

'Although the recovery package made it possible, with the injection of 70 million euros, to raise the annual rate of resurfacing to 8% in 2008, it fell back to 5% in 2010.

'A comparison of funding linked strictly to road maintenance and usage in 2010 and 2011 shows a drop of 25% in road maintenance funds and almost 30% in funds for

surfacing work. By way of example, in the case of the interdepartmental road maintenance service in northern France, funding for maintenance fell from 51 million euros in 2010 to 36 million euros this year.’

Source: French Senate, ‘Trend in national road maintenance funding and its impact on user safety’, 10 February 2011, page 282.

Link: <http://www.senat.fr/questions/base/2011/qSEQ11021203S.html>

According to the website of the French Institute for Roads, Streets and Mobility Infrastructure (IDRRIM):

‘The finance law for 2015, passed on 29 December 2014, set the budget for the transport infrastructures and services program (Program No. 203) at 3.2 billion euros, 11.4% less than in 2014.

‘Funding for surface maintenance and ongoing maintenance (repairs) of the road infrastructure, down 1.8% by comparison with 2014 (131.8 million euros in commitment authorizations and payment appropriations), represents nearly 40% of budget appropriations for 2015.’

Source: IDRRIM, ‘Transport infrastructures: 2015 budget and AFITF funding’.

Link: <http://www.idrrim.com/actualites-presse/2015-01-19.Budget-2015-des-infrastructures-de-transport-et-Financement-de-l-AFITF.htm>

Table 3 shows the total budget amounts allocated to road maintenance.

Year	Budget (M€)
1999	534
2011	691
2012	677
2013	658
2014	643

*Table 3. Budget for national road network maintenance*

Source: French Audit Office, ‘Maintenance of the national road network’.

Link: <https://www.ccomptes.fr/content/download/2664/26790/version/1/file/EntretienReseauNational.pdf>

Source: French Ministry of Ecology, Sustainable Development and Energy, ‘Maintenance and use of the publicly managed national road network’.

Links:

<http://fr.calameo.com/read/001141630422dce7e57ae>

[http://www.developpement-durable.gouv.fr/IMG/pdf/Rapport\\_RRN2012\\_web\\_light.pdf](http://www.developpement-durable.gouv.fr/IMG/pdf/Rapport_RRN2012_web_light.pdf)

[http://www.developpement-durable.gouv.fr/IMG/pdf/Rapport\\_d\\_activite\\_2013\\_L\\_entretien\\_et\\_l\\_exploitation\\_du\\_reseau\\_routier\\_national\\_non\\_concede.pdf](http://www.developpement-durable.gouv.fr/IMG/pdf/Rapport_d_activite_2013_L_entretien_et_l_exploitation_du_reseau_routier_national_non_concede.pdf)

[http://www.developpement-durable.gouv.fr/IMG/pdf/rapport\\_activite\\_2014\\_GRT-WEB\\_04082015.pdf](http://www.developpement-durable.gouv.fr/IMG/pdf/rapport_activite_2014_GRT-WEB_04082015.pdf)



## II. Impact of these measures on construction and civil engineering companies

In the circumstances, it is not surprising that construction and civil engineering groups like Colas are having financial problems. Table 4 is taken from the group's annual report.

en millions d'euros	2014	2013 <sup>(1)</sup>	Variation 2014/2013
Chiffre d'affaires consolidé	12 396	12 845	- 3,5 %
<i>Dont France</i>	6 582	7 388	- 10,9 %
<i>Dont International</i>	5 814	5 457	+ 6,5 %
Résultat opérationnel courant	332	390	- 58 M€
Résultat net consolidé (part du Groupe)	604	312	+ 292 M€
Capacité d'autofinancement nette	610	667	- 57 M€
Cash-flow libre <sup>(2)</sup>	154	378	- 224 M€
Trésorerie nette/(Endettement net)	682	31	+ 651 M€

Table 4. Colas Group, financial year 2014

Key:

En millions d'euros	In millions of euros
2014	2014
2013 <sup>(1)</sup>	2013 <sup>(1)</sup>
Variation 2014/2013	Variation 2014/2013
Chiffre d'affaires consolidé	Consolidated revenue
Dont France	For France
Dont international	At international level
Résultat opérationnel courant	Current operating profit
Résultat net consolidé (part du Groupe)	Consolidated net profit (Group share)
Capacité d'autofinancement nette	Net self-financing capacity
Cash-flow libre <sup>(2)</sup>	Available cash flow <sup>(2)</sup>
Trésorerie nette/(Endettement net)	Net cash/(Net indebtedness)

The table shows that the group's revenue in France fell by nearly 11% in a year.

'Activity fell by 10.9% in France and grew by 6.5% at international level.

'Road construction activity is down by 4.1%, with growth in revenue at international level and in the overseas territories failing to compensate in full for the contraction of activity in mainland France.

‘Current operating profit amounts to 332 million euros, as against 390 million euros in 2013. Good performances have been recorded for road construction activity at international level (Europe, French overseas territories, Africa, Asia and Australia).’

The group is clearly expanding at international level.

‘In 2014, Colas pursued a targeted external growth policy, particularly by expanding its road construction activities in Australia and Ireland, and its production and sales of surfacing materials in Denmark.

en millions d’euros	2014	2013	Variation 2014/2013	Variation à périmètre et taux de change comparables
Routes Métropole	4 459	5 142	–13,3 %	–13,3 %
Routes Europe	1 660	1 401	+18,5 %	+16,1 %
Routes Amérique du Nord	2 470	2 409	+2,5 %	+4,3 %
Routes Reste du monde	1 351	1 413	–4,4 %	–2,8 %
<b>Total Routes</b>	<b>9 940</b>	<b>10 365</b>	<b>–4,1%</b>	<b>–3,8%</b>
<b>Activités de Spécialités</b>	<b>2 446</b>	<b>2 463</b>	<b>–0,7%</b>	<b>–1,3%</b>
<b>Holding</b>	<b>10</b>	<b>17</b>	<b>ns</b>	<b>ns</b>
<b>TOTAL</b>	<b>12 396</b>	<b>12 845</b>	<b>–3,5%</b>	<b>–3,4%</b>

Table 5. Colas Group activities by operational sector

Key:

En millions d’euros	In millions of euros
2014	2014
2013	2013
Variation 2014/2013	Variation 2014/2013
Variation à périmètre et taux de change comparables	Variation at comparable scope and exchange rates
Routes Métropole	Roads in mainland France
Routes Europe	Roads in Europe
Routes Amérique du Nord	Roads in North America
Routes Reste du monde	Roads in the rest of the world
Total Routes	All roads
Activités de Spécialités	Specialized activities
Holding	Holding
TOTAL	TOTAL

'In mainland France, road construction activity in 2014 accounted for revenue of 4.46 billion euros, 13% down on 2013. After several years of downward movement (by an average of 4-5% a year between 2009 and 2013), the road construction market contracted brutally from March 2014 because of the slowdown in local authority investment. The usual post-election slowdown was exacerbated by the significant reduction in State funding for local authorities, abandonment of the ecotax, which is hitting AFITF (financing agency for transport infrastructures in France) funding, and the uncertainties linked to the announcement of territorial reforms yet to be clarified by policymakers. This means that the drop in activity has been greater and more rapid than expected, and regional disparities have increased, with eastern and northern France being especially affected.'

By contrast:

'In Europe, road construction activity accounted for revenue of 1.66 billion euros in 2014, up by 18% by comparison with 2013 (+16% at constant scope and exchange rates).

'Road construction activity in North America accounted for revenue of 2.47 billion euros in 2014, up by 3% over 2013 (+4% at constant scope and exchange rates).'

All of this obviously has an impact on employment, particularly temporary jobs.

'The Colas Group's total workforce at 31 December 2014 is slightly smaller (-2%) than it was at 31 December 2013, in line with activity.

'In France, where the economic environment is difficult, the workforce is slightly smaller than it was (down by 2.2%):

- drop of 4.7% in road construction subsidiaries in mainland France, which have suffered a brutal decline in activity since March;
- virtual stability in the overseas territories, with an increase in Réunion linked to the start of construction of the coastal highway;
- increase of 4.4% in specialist subsidiaries, particularly as a result of a strong increase in activity.

The temporary workforce has been cut drastically, by about 23%.'

Source: Colas, 'Annual report 2014', 14 April 2015.

Link: <http://www.colas.com/sites/default/files//onglets/colas-financier-fr-2014.pdf>

### III. Critical analysis

It is clear that global policy preferences are fundamentally absurd and unsound.

It is not rational to want, ‘in principle’, to reduce the car’s share in the transport system. More than 70% of people drive to work, and there is a good reason for this. You cannot replace cars with public transport because people do not all live in the same place or have the same working hours. To have your own car represents a necessary freedom: the freedom to live where you want and to choose your working hours.

The fact that people live a long way from their place of work or nearest railway station is often because homes are cheaper when they are in villages poorly served by public transport. It is precisely people who are worse off financially who need a car to drive to work. This means that ‘anti-car’ measures will hit poorer people first.

Of these measures, let’s look at one that deserves to be singled out: at many suburban and provincial railway stations, a fee is charged for parking. People who have not been able to find work locally have to take the train to go to work in Paris or in another city or major town, which are the only places where there are still jobs to be found. So the fee they have to pay the municipality in which they park their car seems like a tax paid to the very people (local community leaders) who are unable to provide them with work.

The principle whereby public transport should take the place of private transport all over the country is fundamentally mistaken and irrational. Let’s take a specific example to make ourselves clear: a school bus service, which would take the place of private cars (parents drive their children to school in the morning, and drive to collect them in the afternoon). If you introduce a bus service, the bus will be empty for most of the time and will travel many kilometers because the children do not all live in the same place, and don’t all start and finish school at the same time.

The principle of reserved lanes for certain types of vehicle (usually buses and taxis), which cannot be used by ordinary cars, is similarly absurd and deeply irrational. In towns and cities, every lane is precious: you cannot create as many roads and lanes as you would like, simply by widening the streets or building new carriageways. So you have to make sure that the best possible use is made of existing lanes, particularly from the point of view of economic activity. This is absolutely not the case at the moment, especially in Paris, where the war against private cars is openly vaunted as a priority.

Of course, economic activity is being badly affected. A business needs its workers to be able to get to work, it needs to be able to receive deliveries and dispatch goods. Even a shop has to provide its customers with parking spaces, if only so they can take away the things they have bought. None of this is possible now in Paris.

Offices are falling empty because there are no businesses to fill them. The Mayor has announced that, *'Paris wants to convert a third of its empty office spaces into housing. Turning offices into homes is an absolute priority,'* Ian Brossat said, claiming that this would be a 'major lever' in enhancing social integration (Lepoint.fr, 21 April 2015).

## Chapter V

### The war against the car

#### I. A major social objective

In the last chapter, we looked at road maintenance budget cuts, but they are just one aspect of the war against the car. The main accusations against the car are that:

- it consumes fossil resources (oil);
- it pollutes the air and therefore has an impact on public health;
- it contributes to greenhouse gas emissions and is therefore contributing to climate change.

In response to the first complaint, policymakers wanted to replace oil with various other energy sources: biofuels (which we looked at earlier), electricity and hydrogen. The principle is always the same: generous subsidies and endless publicity and promotion campaigns; but the whole thing soon slipped quietly off the agenda because it was not financially viable.

We shan't be looking at the second complaint – the one about public health – because it does not come within the remit of this White Paper. We shall simply say that the public authorities and industrialists might well be inspired by the example set by this White Paper and seek expert advice on the many studies claiming that cars are a threat to public health: few of them are of any scientific value. It is utterly clear that France does not have any public health problems linked to cars.

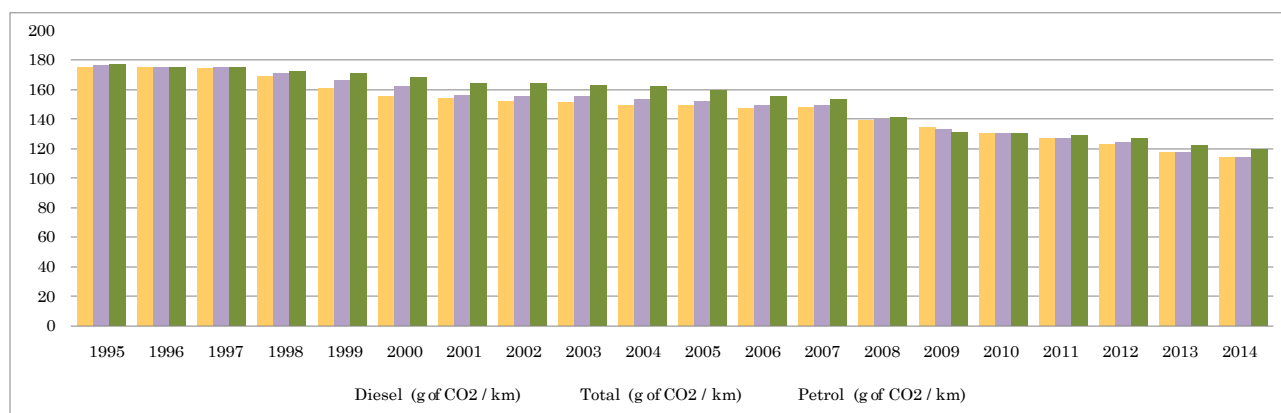
So we shall be concentrating here on the third complaint: that cars contribute to greenhouse gas emissions.

#### II. The figures

Table 1 shows CO<sub>2</sub> emissions caused by cars, and emission trends over the years.

Year	Diesel (g of CO <sub>2</sub> / km)	Total (g of CO <sub>2</sub> / km)	Petrol (g of CO <sub>2</sub> / km)
1995	175	176	177
1996	175	175	175
1997	174	175	175
1998	169	171	172
1999	161	166	171
2000	155	162	168
2001	154	156	164
2002	152	155	164
2003	151	155	163
2004	149	153	162
2005	149	152	159
2006	147	149	155
2007	148	149	153
2008	139	140	141
2009	134	133	131
2010	130	130	130
2011	127	127	129
2012	123	124	127
2013	117	117	122
2014	114	114	119

*Table 1. Trend in average CO<sub>2</sub> emission rates in France – new private vehicles sold in France*



*Figure 2. Trend in average CO<sub>2</sub> emissions in France – new private vehicles sold in France*

Source: ADEME.

Link: <http://carlabelling.ademe.fr/chiffrescles/r/evolutionTauxCo2>

The table and figure show a clear and constant downward trend in CO<sub>2</sub> emissions. But the war against the car is as aggressive as ever.

### III. The weapons used

The public authorities have used all sorts of weapons in their war against the car.

#### A. *The bonus-malus system*

The bonus-malus system is a special tax scheme based entirely on CO<sub>2</sub> emissions, which means that the very principle underlying it is absurd.

It is astonishing that this tax scheme has never been questioned by vehicle manufacturers or user groups, who have shown remarkable restraint in the circumstances. Any law in France is open to many courses of appeal (including through the French Constitutional Council and various European bodies), but as soon as the underlying argument is that ‘it’s good for the planet’, nobody says a word.

The bonus-malus system has been revised on numerous occasions; in fact, it is constantly being revised. Versions in previous years encouraged buyers to choose small cars, and people saw the bonus as an incentive to buy. What the French State meant to say, however, was: don’t buy a car, especially not a large one! The bonus-malus system cost the French State an awful lot of money.

According to the French Audit Office:

‘The unexpected cumulative deficit generated by the bonus-malus system amounted to 1.45 billion euros during the period 2008-2011 and was covered by the State budget.’

Source: French Audit Office report, ‘French implementation of the climate and energy package’, December 2013, 235 pages.

#### B. *Traffic restrictions*

A number of French towns and cities have introduced traffic- and speed-restriction measures in certain areas. Some random examples include:

- prohibiting certain categories of vehicle in particular areas;
- reducing speed limits on the Boulevard Périphérique (Paris ring road) when a ‘pollution episode’ has been announced;
- introducing ‘circulation alternée’ in certain circumstances (only vehicles whose registration numbers are odd or even are allowed on certain days).

All of these measures suffer from poor-quality preliminary studies and a lack of validation.



## 1. Poor-quality preliminary studies

These measures are based on scientific studies commissioned for the purpose; all of these studies are of very poor quality and none of them has been subject to any form of validation.

Let's take a specific example, one in which SCM was involved. In 2012, SCM won a City of Paris tender to conduct a study entitled, 'Study of uncertainties associated with the air quality modeling program, Aria Impact'. The following paragraphs come from our report.

'At the request of the City of Paris Urban Environment Agency (AEU), we have appraised the air quality modeling program, Aria Impact. Road traffic data are fed into the program and the AEU is planning to use it to assess the consequences of traffic restrictions: traffic restrictions in certain areas for certain types of vehicle.

'Our analysis bears solely on the scientific quality of the program, which is constructed on the basis of the basic laws of physics, and not on the basis of empirical laws; it is important to highlight this.

'The laws of physics are highly complex and bring a huge number of parameters into play. The spread of a pollution incident will vary depending on atmospheric pressure, wind direction, whether or not it is raining and all sorts of other parameters.

'As most of these parameters are not properly known (and some of them are not even measured), the program designers had to resort to simplifications. Also, the calculations cannot be continuous but have to be discretized, with the area concerned being mapped as a grid. This is the usual way of proceeding.

'The program has three calculation modules corresponding to different physical approaches. All well and good, but which module do you choose? If all three modules are valid, then they should give similar results. This is not the case.

'The program is extremely sensitive to all sorts of variations. For example, temperature variations cause significant and inconsistent changes in the concentration of pollutants. In many cases, a small variation (0.5°C) leads to a larger discrepancy in relation to the control test than large variations (10°C). The same inconsistency occurs as regards changes in wind direction.

'This means that the program suffers from what one might call "data-processing errors", which lead to unstable results in response to small changes in the parameters.

'But, and this is much more serious, it also suffers from a fundamental design error, in that it works on a given area and completely ignores what is happening outside that area. If, for example, one wants to assess pollution in the Place de la Bastille, the result will depend on the size of the surrounding area taken into consideration, and will be

very different if this area is one or five kilometers wide. This is because this program does not take account of what, in mathematics, we call the “border values” or “limit values” of the area under consideration. Instead it works as though the area is isolated from the rest of the world.

‘This is a critical design flaw that makes the program entirely inappropriate as an instrument on which to base public decision-making.

‘Traffic restrictions in a small area might, at best, cause pollutant concentrations to fall by a few percentage points. The result is unclear, because the pollution comes from elsewhere and takes a long time to dissipate. The uncertainties in the Spatialized National Inventory were of the order of 150%; they are not measurable in this case because of the methodological errors we have highlighted, but the uncertainties linked to the choice of calculation module alone are of the order of 20%.’

Following our report, the AEU conducted its own tests on the program, which confirmed our findings in every respect.

As mentioned earlier, we were, in 2010-2011, involved on behalf of the Directorate-General for Energy and Climate (as co-contractors with CITEPA, the Interprofessional Technical Center for Studies on Atmospheric Pollution), in an ‘estimate of the uncertainties in the Spatialized National Inventory’. This inventory is meant to give the concentration of pollutants, hour by hour, for every km<sup>2</sup> of mainland France. Our work showed that these uncertainties were considerable. Below is an extract from the report.

‘One of the objectives of the Spatialized National Inventory is to make it possible to assess the impact of a given scenario.

‘We considered the example of a scenario involving mobile surface sources: emissions associated with urban traffic. The scenario involves a modification of the vehicle park: the number of vehicles is constant, but the percentage of each type of vehicle varies.

‘When the scenario is set up, variations in hourly emissions of NO<sub>x</sub> for a given time slot are equivalent to 10%. In order to estimate the uncertainties associated with this variation, we set up a simulation of Monte Carlo, on the basis of the (artificial) hypothesis that the variables will follow normal rules.

‘The results of the Monte Carlo simulation are as follows:

- if the uncertainties associated with hourly emissions are equivalent to 40%, then the average uncertainty regarding the variation is of the order of 32%;
- if the uncertainties associated with hourly emissions are equivalent to 70%, then the average uncertainty regarding the variation is of the order of 57%;

- if the uncertainties associated with hourly emissions are equivalent to 110%, then the average uncertainty regarding the variation is of the order of 105%;

‘The higher the initial uncertainties regarding the emissions under consideration, the greater will be the uncertainties associated with the variation of these emissions in a given scenario.’

So it is quite obvious that such an inventory cannot be used as a basis for local decision-making at a specific time: the uncertainties are too great. It cannot be used, for example, to restrict traffic on a Monday morning in the northern part of a town or city.

## **2. Lack of validation**

None of these studies and none of the programs intended to predict air quality trends has been subject to any form of validation. Validation consists (it is very simple!) of running the program in specific conditions and comparing the results with actual measurements: it is a basic element of the scientific approach.

But policymakers want compliant studies, studies that confirm that they are right, and the very notion of validation frightens them, because it will show up the weaknesses in the study and the software program.

In the case of the Spatialized National Inventory, the following can be read on the website of the Ministry of Ecology, Sustainable Development and Energy.

‘The Ministry of Ecology, Sustainable Development and Energy is drawing up a spatialized national inventory of emissions of pollutants into the atmosphere in mainland France and in the overseas territories. This work is being undertaken within the framework of implementation of the ‘air plan’ announced in November 2003 in connection with the national program to cut emissions of atmospheric pollutants (decree of 8 July 2003).

‘The aim is to improve the forecasting of pollution by ozone (O<sub>3</sub>), nitrogen dioxide (NO<sub>2</sub>) and particles (PM<sub>2.5</sub> and PM<sub>10</sub>) by the Prev’Air system developed under the initiative of the Ministry of Sustainable Development in collaboration with the National Institute for the Industrial Environment and Risks (INERIS), the National Scientific Research Center (CNRS), the Environment and Energy Management Agency (ADEME) and Météo-France (French meteorological service), by providing higher quality data on spatialized emissions.

‘It should also make it possible to improve monitoring of air quality and respond to requirements concerning the management of air quality (drawing up of regional climate-air-energy plans). More broadly, this work should enable us to meet the expectations of the various players involved either directly or indirectly in assessing, analyzing and managing the behavior of air pollutants (approved air quality

monitoring associations, administrations, study and research bodies, industrialists and so on).

‘The Spatialized National Inventory (INS) covers emissions of some forty pollutants emitted by all inventoried sources (human activities and natural emissions). The full inventory of emissions of air pollutants, based on a kilometric grid, is based on methodologies that prioritize the use of specific data for individual sources. The national inventory corresponds to emissions for 2004; regular updates are planned.

‘As well as providing data for the Prev’Air forecasting system, the INS will:

- make it possible to provide bodies involved in delivering public services with data on releases of pollutants into the air;
- make it possible to provide various research bodies with data sets on atmospheric emissions;
- play a public information role;
- enable the State, when it is drawing up new regulations, to conduct studies of emission scenarios that make it possible to assess the impact on emissions and air quality.’

Source: Ministry of Ecology, Sustainable Development and Energy, ‘The Spatialized National Inventory (INS)’, 12 October 2009 (updated on 8 August 2014).

Link: <http://www.developpement-durable.gouv.fr/L-Inventaire-National-Spatialise.html>

The models have not been validated by anyone. Public decisions (for example, ‘circulation alternée’) continue to be made using computer programs developed by dishonest people whom the public authorities have specifically asked to ‘develop products that confirm that we are right’.

## **IV. Impact on employment**

The impact on employment is especially significant in the automotive industry. These are the figures for the past five years (source: Trendeo): 27,123 jobs created and 72,813 jobs lost, which is a loss of 45,690 net jobs. (‘Net jobs’ means the difference between jobs created and jobs lost in an industry.)

Figure 3 shows the trend over five years.

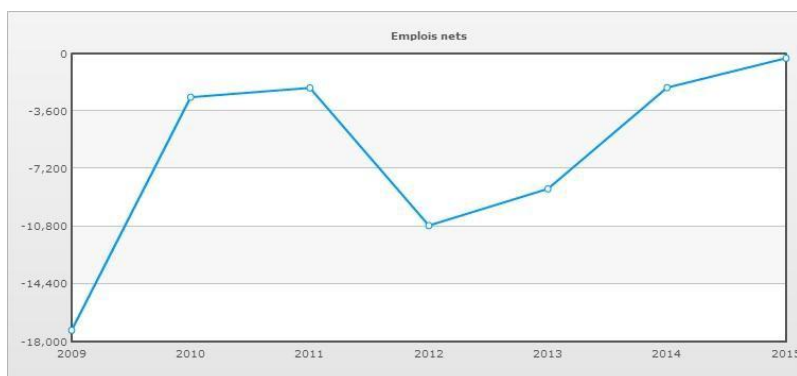


Figure 3. Net jobs trend in the automotive industry (2009-2015)

Key:

Emplois nets	Net jobs
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The industry is doing a little better now, but is a long way from being able to take more workers on again. Furthermore, these figures are for direct employment only and do not take account of subcontractors.

## 1. Vehicle sales

Figure 4 shows annual vehicle sales figures in France: they have been falling since 2009.

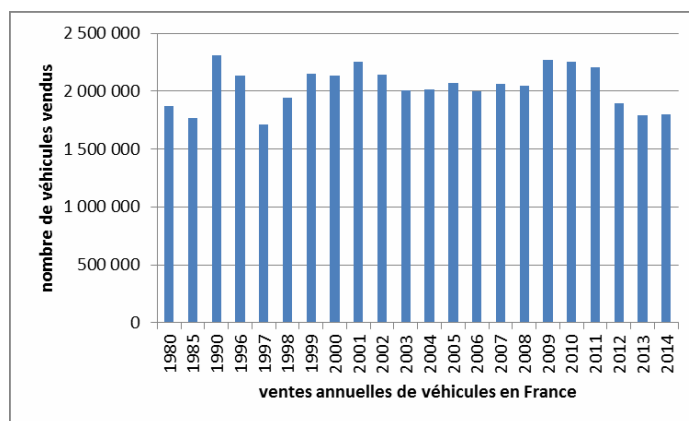


Figure 4. Annual vehicle sales in France

Key:

Nombre de véhicules vendus	Number of vehicles sold
Ventes annuelles de véhicules en France	Annual vehicle sales in France

Source: Committee of French vehicle manufacturers (CCFA).

## 2. Employment trends at Peugeot

According to Le Monde (20 November 2014):

‘It has become a real passion, with employment trends at PSA Peugeot Citroën attracting regular media attention. On the brink of crisis in 2012 and 2013, the group has since slashed its workforce. Between now and 2016, 11,200 employees will have to leave the manufacturer, more than 8,000 of them under a job protection scheme.

So when a press release comes through announcing the loss of a further 3,450 jobs at PSA in 2015, it’s everyone to their battle stations. The group officially denies the figure. The group’s trade unions, with the exception of a few elected CGT officials, aren’t bothering to get wound up about it, even though jobs are going to continue to be lost in the coming years.’

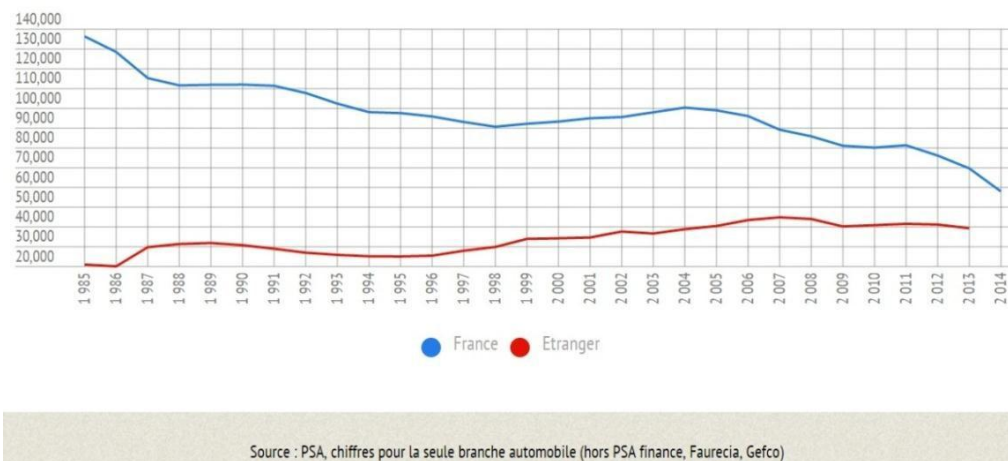


Figure 5. Employment trends at the PSA Group in France and abroad

Key:

Etranger	Abroad
Source : PSA, chiffres pour la seule branche automobile (hors PSA finance, Faurecia, Gefco)	Source: PSA, figures for vehicle manufacturing alone (excluding PSA Finance, Faurecia and Gefco)

Source: Europe 1.

<http://www.europe1.fr/emploi/psa-n-en-finit-d-ajuster-ses-effectifs-2298631>

The situation at the Colas Group is similar but more accentuated: loss of jobs in France, expanding business abroad. You can’t expect people to buy a new car if they are constantly being told it’s bad for the planet.

## Chapter VI

### Energy, employment and the planet

#### I. The energy needs of a civilization

Any civilization, in order to survive, needs energy. These energy needs seem very simple to measure for our modern civilizations, with their taste for figures of all kinds. We know, for example, precisely how much electricity, oil and gas are consumed in France each year.

But there is a confusion here. To see what it is, we shall begin with some examples drawn from the past. What were the energy needs of a farmer who worked his land with the help of an ox, then sowed his crops, and harvested them with the help of his neighbors? What were the energy needs of an instrument-maker crafting violins in Cremona? Or of a soldier during the crusades?

Although they seem out of date, these examples are still relevant: we cannot measure the energy needs of human activities. It is, to take a simple, up-to-the-minute example, impossible to specify the amount of energy required to prepare this document.

All we can do is measure certain consumptions. We can correctly measure electricity consumption (measured in TWh) or oil consumption (measured in barrels), but this is not a correct reflection of human energy consumption.

For Voltaire (in his *Traité sur la Tolérance* [Treatise on Tolerance]), ‘Nature says to all men: I have brought you into this world weak and ignorant, to pass a few brief moments here and feed the Earth with your corpses.’

A scientist reaches a similar conclusion: human activities do not in themselves consume energy, they transform it. Driving a car from one place to another involves consuming energy released from oil by chemical reactions, but also creates heat by the Joule effect. Constructing a building might involve consuming oil, but also creates potential energy: the overall energy balance is zero. Seen from another planet, the energy balance of the human race is zero.

Travelling from Paris to Marseilles by airplane, TGV or bicycle involves consuming different forms of energy. We could argue about whether we need to include the research that went in to designing the airplane or train, whether we need to include the pilot’s or driver’s food and labor, but in the end the overall energy balance is zero.

So the question is not as simple as it might seem. Of course we need energy, to one degree or another, but we cannot define our energy needs, because it is all about a transformation, and the final balance is zero.

We have three types of energy on this planet:

- the kinetic energy of rotation (the Earth spinning on its axis, the Earth turning around the Sun, and the Moon);
- thermal energy (the Earth's core is hot);
- the energy represented by the matter that makes up the Earth.

The only energy that comes from outside the planet is from the Sun. The only energy loss we suffer is the radiation (both light and heat) reflected back by the Earth. It is estimated that, in total, the Earth is constantly receiving 170 million gigawatts of power, of which it absorbs 122 million and reflects the rest.

Source: Wikipedia (French version), 'Solar Energy'.

Link: [http://fr.wikipedia.org/wiki/%C3%89nergie\\_solaire](http://fr.wikipedia.org/wiki/%C3%89nergie_solaire)

Source: Ecotopie, 'Solar Energy'.

Link: <http://ecotopie.chez.com/sol.html>

We can manage perfectly well with solar energy, just as it reaches us from the Sun, without any form of industrial processing; human beings managed perfectly well with it for millions of years. All you have to do is to work during the day and sleep at night. But as soon as you want to use an oil lamp, you need oil, and the Sun is no longer enough. The whole discussion around solar power is about determining whether, with the help of certain instruments, solar energy can take the place of the oil lamp, and the answer is no. But first of all we need to look at the qualities of the various forms of energy because, in the eyes of public opinion, some forms are more noble than others.

## II. Renewable energies

According to environmental experts, some energies are renewable (wind, tidal, solar), while others are not (oil, uranium and so on). The latter will eventually run out, while the former are infinite. It is all a load of nonsense.

A tidal power plant uses the energy of the tides, that is, the kinetic energy of rotation. Producing electricity in this way slows the rotation of the Earth and, to a lesser extent, the rotation of the Moon: it is not a renewable energy. Wind is caused partially by differences in atmospheric temperature (and therefore by the thermal energy of the Sun) and partly by the rotation of the Earth. Using wind to produce electricity cools the Earth and slows its rotation: there is nothing renewable about that.



A solar panel uses thermal energy coming from the Sun. Using it to produce electricity comes down to cooling the Earth. Also, given reflection by the glass surface, a significant proportion of the solar energy usually received by the Earth is reflected back into space; the balance is especially negative. As we saw in Volume I, the Earth already naturally reflects 30% of the energy it receives.

As regards the various forms of energy available on the planet itself, knowing which ones to use is a matter of opportunity: the least costly, the easiest to access and use, the least polluting, the ones that enable us to maintain our lifestyle and the competitiveness of our businesses, and so on. They are all renewable: if asked, a nuclear physicist can transform uranium into cow dung and vice versa, but it would require energy, which can come only from the Sun. There is nothing, for example, to say that in 20 or 30 years' time we shan't be able to use genetic engineering to create bacteria that can produce oil in a very short time. In this respect, oil is more renewable than solar energy.

So there is no real, conceptual justification for 'renewable' energies, least of all solar power! Once we have got ideological issues out of the way, what we are faced with is a simple matter of commercial competition. There are various ways of producing energy; we simply have to choose the most appropriate.

### **III. Trends in energy requirements**

The world's population has more than doubled in the past 50 years, rising from three billion in the 1960s to 6.5 billion today. Population growth will certainly slow down (it is essentially due to advances in health care and agriculture), but it will not stop. The UN is predicting a peak of nine billion in 2050.

In France, energy consumption has been stagnant for several years. Table 1 comes from the Ecology Ministry's statistics office; the figures are in Mtoe, or millions of tonnes of oil equivalent.

# Données corrigées des variations climatiques, en Mtep

	1973	1990	2002	2012	2013	2014
Pétrole	85,4	70,8	73,6	61,9	61,0	60,7
Électricité	13,0	25,9	34,4	37,7	38,1	36,8
Gaz	8,7	23,3	34,7	32,9	31,3	31,3
Énergies renouvelables	8,9	10,5	9,9	14,3	15,1	15,7
Charbon	17,7	10,2	6,5	5,2	5,5	5,5
Total énergétique	133,6	140,7	159,2	152,1	151,0	150,0
Non énergétique	10,9	12,4	16,1	14,2	13,4	14,0
<b>Total consommation finale</b>	<b>144,6</b>	<b>153,1</b>	<b>175,3</b>	<b>166,3</b>	<b>164,5</b>	<b>164,0</b>

Source : calculs SOeS, d'après les sources par énergie

Table 1. Primary energy production in France

Key:

Données corrigées des variations climatiques, en Mtep	Climate variation corrected data, in Mtoe
Pétrole	Oil
Électricité	Electricity
Gaz	Gas
Énergies renouvelables	Renewable energies
Charbon	Coal
Total énergétique	Total consumption for energy
Non énergétique	Consumption for other purposes
Total consommation finale	Total consumption

Source: French Ministry of Ecology, Sustainable Development and Energy, 'France's energy balance for 2014', July 2015.

Link: <http://www.statistiques.developpement-durable.gouv.fr/publications/p/2360/112/bilan-energetique-france-2014.html>

By contrast, if they are to secure the resources necessary for their development, developing countries will have greatly increasing energy needs.

So there is certainly not likely to be a drop in energy needs, quite the opposite.

Energy is obviously a vital infrastructure for the development of a civilization. It is essential for the effective operation of all machines, whether fixed or mobile, and for heating homes and offices. In France, we use electricity and natural gas. Natural gas is for the most part imported (France's last reserves at Lacq are now exhausted); electricity is mostly generated in France by nuclear power plants (about 70% of production).

Very generally, it could be said that France has good quality, very low cost energy. There are very few power cuts and the current supplied by the grid is stable in both frequency and voltage. There is probably no other country in the world whose energy performance is so good. The same goes for all of France's infrastructures: there are very few countries in the world with such high quality infrastructures.

Of course, because the situation was satisfactory, successive governments have decided that something needed to be done: they decided to launch an 'energy transition', which nobody sees the need for. The first consequence of this transition will be that, in the future, electricity will be of poorer quality (more power failures because of intermittent supplies) and much more expensive!

## **IV. A confused doctrine**

As usual, the doctrine announced by the public authorities over the past 30 years is extremely confused: the various elements are contradictory. Let's try to summarize them.

### *A. The doctrine of energy saving*

This comes up again and again in government announcements. It is partly a question of limiting heat loss from buildings, but it is also about restricting the use of lighting on the streets, in offices and shop windows, and so on.

### *B. Use of 'renewable energies'*

This is also part of government doctrine, setting a percentage share of renewables in French energy production.

According to the Ecology Ministry website:

'The European Union has set itself the objective of meeting 20% of its final energy consumption with renewable energies by the year 2020. This ambition translates into a target of 23% for France, broken down as follows: heating (geothermal, biomass, solar, heat pumps, recycled waste) 33%, electricity 27%, and transport 10.5%.'

Source: Ministry of Ecology, Sustainable Development and Energy, 'Renewable energy development policy in France', 12 August 2014 (updated 13 April 2015).

Link: <http://www.developpement-durable.gouv.fr/Politique-de-developpement-des.13554.html>

## **V. Motivations**

Nobody understands why these doctrines have emerged, but the reasons include the three we mentioned in the last chapter:

- energy production consumes fossil resources (for example, natural gas and uranium);
- it pollutes the air and is therefore damaging to public health;
- it emits greenhouse gases and is therefore bad for the planet.

We'll try to analyze these motivations and find a line of thought that might seem logical, though we shan't succeed!

## VI. Inconsistencies

Doctrines with so little scientific legitimacy are always marred by serious inconsistencies.

### A. *Resources*

There is no doubt that a gas-fired power plant consumes gas, which, like oil, is extracted by drilling. But known reserves of natural gas are still considerable (more than 50 years of supply for the world's entire population). Here are the figures for the main sources of energy:

'Estimate of reserve life by type of resource (according to the 2014 BP Statistical Review): reserve life for the various raw materials, based on current finds:

Oil: about 53 years

Gas: about 55 years

Coal: about 113 years

Uranium: about 100 years (on the basis of second-generation reactors; thousands of years if fast-breeder reactors become the norm).'

Source: Energy Knowledge, 'The world's gas reserves'.

Link: <http://www.connaissancedesenergies.org/fiche-pedagogique/reserves-de-gaz-dans-le-monde>

These significant reserves show that an 'energy transition' decided upon as a matter of urgency is in no way justified.

Coal reserves are even greater, at global level. France no longer has any coal mines, and makes little use of coal-fired power plants. But other countries do. When Germany decided to 'get out of nuclear', it provided itself with a network of wind farms, which had to be backed up by conventional coal-fired power plants. China is constantly

commissioning new coal-fired power plants.

According to the Wikipedia (French version) entry on energy in China:

‘In 2012, China produced a total of 2,525 million tonnes of oil equivalent (Mtoe) of primary energy, of which 74.7% was generated using coal.

‘BP has estimated that China’s known accessible reserves of coal at the end of 2014 amounted to a total of 114.5 billion metric tons (62.2 billion metric tons of anthracite and bituminous coal, and 52.3 billion metric tons of sub-bituminous coal and lignite), which will last for 30 years at 2014 production rates.

‘Coal consumption in China (47.6% of global production) is so enormous that its imports, which meet only 7.8% of the country’s needs, make China the world’s largest importer of coal, accounting for 19.7% of the global total.

‘China uses nearly half (46% in 2012) of its coal to generate electricity.’

Coal is seen as being politically incorrect: coal-fired power plants emit health-damaging particles and greenhouse gases. But this is completely incomprehensible. France has virtually no coal-fired power plants left. The country’s energy transition, which is entirely real, is being reflected in the appearance of coal-fired power plants in other countries (such as Germany and China).

Source: Wikipedia (French version), ‘Energy in China’.

Link: [https://fr.wikipedia.org/wiki/%C3%89nergie\\_en\\_Chine](https://fr.wikipedia.org/wiki/%C3%89nergie_en_Chine)

## *B. Public health*

Let’s carry on finding it all incomprehensible; we’ve already got off to a good start. Does France’s energy production pose any risk whatsoever to public health? The answer is evidently not. The accidents that occasionally occur in French power plants (whether nuclear or otherwise) are extremely rare – nothing like the accidents that used to happen, and still do, in coal mines, with miners being killed in ‘firedamp explosions’ (in 2007, more than 100 miners died in an accident in the region of Donetsk). In France, a certain number of accidents are caused each year by gas (explosions), but it is users who are to blame.

We can, quite simply and remarkably, say that French energy production poses no risk of any kind to public health. We shan’t analyze the various aspects any further, since this is outside the remit of this White Paper, which is about global warming.

## *C. It’s bad for the planet*

So let’s move on to the third point: France’s energy production is bad for the planet and must be changed as a matter of urgency.

It is still all incomprehensible, because France's electricity production, which is essentially nuclear, does not emit any of the listed greenhouse gases and, in particular, emits very little CO<sub>2</sub> (it emits water vapor, which forms in power plants' cooling towers, but water vapor is not a listed emission).

#### *D. In brief*

Let's summarize all the things we don't understand.

- We don't understand why we have to save energy: energy is vital for the development of any civilization.
- We don't understand why there absolutely has to be an 'energy transition', when known reserves of oil, gas and uranium are abundant enough to last for decades.

When these resources are exhausted, human beings will develop others. As we have already said, trying to plan the use of these resources is pointless and irrational. We didn't discover electricity by planning the use of candles.

- We don't understand how France's energy production can be bad for public health. France is one of the countries in which people live the longest.
- We don't understand how France's energy production is bad for the planet. The battle against CO<sub>2</sub> is absurd, as we saw again and again in the first volume of this White Paper. And in any case, France's energy production emits no CO<sub>2</sub>...

## **VII. The impact on employment**

It is quite obvious that such confusion does nothing to help employment. It is a problem that is affecting the conventional energy production industries, which are being accused of so many sins, as well as the new industries, which are living on subsidies granted for their supposed political correctness – when the subsidies disappear, they disappear too.

#### *A. Difficulties in the conventional industries*

Below, we have extracted a few paragraphs from a document written by Dominique Maillard (former Director-General for Energy and Raw Materials, and former president of the electricity transport network, RTE). This document is entitled, 'The market software has to be reviewed' (February 2013).

'The paradox of wholesale electricity prices

‘The incident was barely noticed by the press, and yet it was astonishing: in the middle of winter, on 25 and 26 December 2012, for a period of five hours, electricity sold on the French “spot” market was changing hands at a negative price, falling to -50 euros per MWh. In Germany, the price fell to -222 euros per MWh, which means that a consumer was being paid more than five times the ARENH (regulated access to incumbent nuclear facility) price to buy, and that a producer had to pay this amount in order to inject energy into the grid...

‘The causes of this financial aberration: the low level of consumption (Christmas holidays), high wind-turbine output in Germany (reaching 20 gigawatts), and maintenance of nuclear and coal/lignite electricity production in order to guarantee security of supply (particularly in anticipation of requirements to balance intermittent supplies). Too much electricity to get rid of, hence a market in which supply outstrips demand – with no way of regulating supply.

‘Such a situation could be seen as a real gift for European (and especially French) consumers: they have the good fortune to be able to buy electricity on the spot market at a negative price or for close to nothing, all because of the subsidies for renewables (EEG Umlage Betrag) being paid by German households on their total electricity consumption (53 euros per MWh since January 2013).

‘The incident in fact reveals a profound anomaly in the architecture of the current European market, whose consequences imply a short- and medium-term risk to the security of the electricity supply.

‘Indeed, for more than a year now, prices have been unusually low on the European wholesale market. In Germany (where prices are the same as in France for more than 60% of the day), the “Clean spark spread” is ongoingly negative: combined gas cycle power plants are losing money. Not only are the new investments necessary for future years not being made, but more and more producers are seriously considering mothballing brand new plants. In Switzerland and Austria, where a short-term potential of 10 gigawatts of new STEP plants was being planned, most projects have been shelved as unviable.

‘Prices are too low on the wholesale market, whereas the price being paid by the end consumer is rising: an increasing proportion of the electricity network economy is no longer subject to the market but rather to subsidies, coming from watertight sources, right through to final billing.

‘The European market as an optimization instrument

‘The architecture of the European electricity market has been designed as a way of optimizing an energy mix at continental level. The architecture of the market (the “market design”) is the electricity system software that provides all the instruments made available to operators to trade, optimize their portfolio, manage their risks and anticipate their positions, in other words, to ensure the effective functioning of the

“hardware” (power plants, grids, consumption sites). Thanks in particular to the “market coupling” that now covers France, Benelux, Germany and Scandinavia, production groups used all through the day are clearly at the top of the “merit order”, and exchanges between countries are much more efficient and maximize the use of infrastructures.

‘So it works... partly, because the economic signals put out by this market have, for their part, lost all meaning, particularly because of the sale “at any price” of German renewable energy. So there is no longer any incentive for investment in new production or storage facilities.

#### ‘Historical reasons

‘The current “energy only” market model (whereby only energy production, and not production capacity, is paid for) was developed on solid theoretical foundations at a given period (the 1990s) in a specific region, Scandinavia, where Norway enjoyed (proportionally) huge peak power and storage capacities, and in the framework of an energy mix that changed little and was not subsidized. This meant that the sought-after optimization was immediate, from one day to the next, without disturbing long-term economic signals. A centralized spot market with “market splitting” (equivalent to the electricity exchanges of western Europe and their “market coupling”), putting a price on energy alone, proved very effective, in that particular context.

‘In the middle of the first decade of the twenty-first century, this model was successfully transposed to western Europe because the Scandinavian hypotheses were pretty much in place: an electricity generation park that had excess capacity and was subject to little change, few subsidies, and no price on CO<sub>2</sub> emissions.

‘The situation today is very different. France needs more capacity to meet peak demand, and Germany needs more capacity in order to manage the intermittent supply provided by its 60 gigawatts of subsidized renewables. The climate and energy package of 2009 (the three times 20) imposed some inconsistent objectives: achieving 20% renewables in the energy mix and cutting energy consumption by 20% necessarily imply a reduction of far more than 20% in greenhouse gas emissions, hence the collapse of the CO<sub>2</sub> prices that were supposed to promote virtuous development of the production park. The “energy only” model no longer works, because it is too far removed from its prerequisites.

#### ‘Future developments

‘Faced with a threat to the security of their supply, the Member States are all reacting in their own way. The European Commission, usually the vigilant guardian when it comes to the harmonization of market rules, ignored the situation for a long time because it was far too busy trying to impose, before the end of 2014, use of the model that had worked so well in the early 2000s.



‘France is introducing a “compulsory capacity” rule, passed under the NOME law on the new organization of the electricity market. Germany is setting up strategic reserves, and Belgium is considering funded mothballing. And so on. Each country has its own emergency response. These measures are little more than a palliative. They derive from a “patch” in the market software that should have been completely redesigned (it’s like going from Windows 3.0 to Windows 3.1 when you need to build Seven).

‘The idea now getting through to ENTSO-E (the European association of grid managers) and the European Commission is to rethink the economy of the entire market, taking account of the economic cycles of subsidies, CO<sub>2</sub> and so on.

‘It is a huge undertaking for the years to come...’

This document clearly explains why the conventional producers are in difficulty: the inability to forecast electricity prices, or the various taxes that might be introduced.

The following extract comes from L’Usine Nouvelle, 14 February 2013.

‘Of the 125,000 MW of gas-fired power plants in Europe, a fifth of capacity is at risk of being shut down. Reason: lower demand for electricity, the massive arrival of renewable energies, and the greater competitiveness of coal.

‘Energy is no longer shielded from the crisis! After manufacturing industries, such as the automotive industry and steel and oil refineries, it is the turn of electricity generation. Gas-fired power plants are being mothballed, not as a result of energy policy as in the case of the German nuclear industry, but for financial reasons. The British producer Centrica, for example, has announced the closure of its 340-megawatt power plant in King’s Lynn, in Norfolk. Its compatriot, International Power (GDF Suez Group), is going to shut down its 210-megawatt plant in Shotton, in Wales. The Norwegian Statkraft is planning to mothball its 430-megawatt unit in Emded, in Germany. And the Pont-sur-Sambre plant in northern France has been put under safeguard procedure, just two years after it was commissioned by Poweo...’

According to Le Monde, 11 November 2013:

‘European energy giants plead the cause of gas in Brussels

‘They represent 50% of European electricity-generation capacity, supply 213 million consumers, and are denouncing what they see as a time bomb. Ten heads of major European groups, led by Frenchman Gérard Mestrallet (GDF Suez), visited Brussels on Friday morning, 11 November, to call for “a change of direction in European energy policy”.

“We are speaking not for ourselves, but for Europe. We have overcome our differences [between energy providers] and we are saying to policymakers: do the same [...], the current situation is untenable,” said the head of GDF Suez. Three problem areas were

detailed: competitiveness, security of supply, and the environment.

‘Electricity tariffs are still going up for European consumers, when wholesale prices have halved over the past few years. The electricity supply is also threatened by ongoing closures of gas-fired power plants – the only ones that can make it possible to guarantee output during consumption peaks, especially in the winter. These power plants are in competition with the coal the US has been exporting since the shale gas “revolution”, and with the development of subsidized renewable energies. In all, the equivalent of 51 gigawatts (the capacity of Belgium, Portugal and the Czech Republic put together) has been shut down.

‘This policy, which might be described as erratic, has also failed in terms of the environment, because CO<sub>2</sub> emissions increased by 2.4% between 2011 and 2012, driven particularly by British and German coal-fired power plants.

‘Faced with a situation which they now see as critical and which is, they say, preventing any future investment, the ten company heads, who also represent 30% of Europe’s renewable energy capacity, are proposing three ways forward: putting an end to the public funding being allocated to some renewables that are now considered mature (wind turbines) and redirecting it towards research (energy storage); boosting the carbon market to genuinely encourage a move away from the most polluting energies; and lastly, setting up a “capacity market”, providing funding for the gas-fired power plants needed to deal with consumption peaks, particularly in the winter, even if they operate only intermittently.

‘In response to this alarm call, the European Commission’s Director-General for Energy, Philip Lowe, who was present at the meeting, spoke out, saying that he felt the energy producers were targeting EU bodies rather than Member States. “We are not pointing our finger at a person, but at a problem,” replied ENEL head, Flavio Conti. “You too have your share of responsibility,” added E.ON’s Johannes Teyssen, while Gérard Mestrallet stressed the urgent need for a dialog between Member States, EU bodies and energy providers.

‘The European Commission does not have all the power; heads of State and government must also take their share of responsibility,” Mr Mestrallet had said in Brussels the day before, when he had invited several journalists, including from Le Monde. He said he hoped that “the greater awareness that this problem is creating” will lead to “decisions before the European elections” in May. It is more than likely that this group of energy providers will speak again before the European energy summits to be held in February and March.’

We should point out here that, when the energy providers call for an increase in the price of a metric ton of CO<sub>2</sub>, they are showing that they have not understood the problem. As we saw in Volume I, taxation of CO<sub>2</sub> emissions is a deception.

One might think that if the conventional producers are behaving badly, then the new

energy producers would be conducting themselves perfectly. Not at all.

## Chapter VII

### Solar energy

#### I. Presentation

It is really very difficult to form an objective, dispassionate opinion about solar energy. Whatever document you open, you can only find praise for it: 'renewable energy,' 'green energy,' 'exponential growth,' and so on. We all get junk mail every day: 'Invest in solar energy ...' The chorus, of course, has only gotten louder with the recent concerns about sustainable development and fighting the greenhouse effect, etc. That is a subject that the experts, the media and the politicians all agree on!

It is quite clear, however, that this is not a path to the future for an industrialist, for the following reasons:

- Solar energy is a weak, diffuse and intermittent form of energy; it requires huge collectors and means of storage that pose unsolved technical problems;
- Electricity production by solar cells is extremely expensive and is not viable, because the yield is very low. It requires rare raw materials, the price and availability of which can fluctuate;
- Heat production by solar cells is just as expensive; devices that depend on it are not at all competitive;
- The Government has provided many support schemes for these industries, including subsidies, tax relief, tax credits and buyback arrangements for the energy produced. Despite all this support, the whole industry is performing extremely badly in financial terms;
- People are very concerned these days about the health and environmental effects of materials, including the problem of waste recycling. These issues have barely been addressed for solar power, but it appears that certain components are hazardous to health.

In short, despite at least 2,250 years of subsidized research (Archimedes is said to have used mirrors to set the Roman fleet on fire during the siege of Syracuse, but that theory is controversial), there is no situation in which solar technology has proved to be competitively efficient. The intrinsic properties of solar energy mean that it is fundamentally uncompetitive compared with other forms of energy in temperate countries. Things might be technically different in the middle of a desert, but the problem is that a need exists and has to be solved.

Research and industrialization for large-scale energy production based on solar energy are a technological aberration and a waste of public money. The same applies to hot water production. They are grounded solely in ideological clichés and passing fads. The only situation where solar energy has a role is for isolated devices, such as traffic signs and telephones in remote areas. It still has severe limitations, however, since the equipment is fragile, bulky and nonportable and requires additional energy storage devices.

The general public's attitude toward solar energy as usual has all the hallmarks of an ideology in that it consists of preconceived ideas with no scientific basis. There are two kinds:

- Ancient religious beliefs, since all ancient religions venerated the sun, the source of life;
- Very strong links with current concerns, such as a belief that the planet is in danger, threatened by global warming caused by human beings.

Solar energy is therefore looked on favorably by the general public and by politicians; after all, it has a natural origin (it is what is called 'green' energy) and it is described as 'renewable', which is completely inane. It is seen in a particularly good light by environmental movements, like everything that comes from nature—wind, tides, cow dung, etc.

Uranium is also present in nature, at a concentration of 3 g per metric ton (3 parts per million) in rocks and 3 mg per metric ton (3 parts per billion) in seawater (Wikipedia—Uranium), but our senses do not detect radioactivity, while they do detect sunlight (or at least visible light, although not infrared or ultraviolet). That is what makes all the difference in people's perception, where solar = beneficial and radioactivity = danger.

The current of thinking that considers the planet to be under threat from humankind, which is widespread in France today, therefore lies at the origin of all sorts of attempts to promote 'green' forms of energy. Even though most people (especially politicians and journalists) share such ideas these days, the facts will not go away; the facts could not care less about human consensus.

## **II. The facts about solar energy**

There are three facts, all of them self-evident:

- It is a weak, diffuse form of energy;
- It is not a constant form of energy;
- The energy source (the sun) is not in a fixed position.

The words ‘diffuse energy’ mean that the sun does not provide much energy in any one place taken in isolation; the amount received also depends on latitude. The more obliquely the sun’s rays strike the ground (toward the poles), the less effective they are. The amount of energy also depends on cloud cover, rainfall, etc.

The fact that this energy is not constant is a result of the Earth’s rotation: the sun cannot be seen at night!

The fact that the sun’s position is not fixed (it varies during the course of the day and it varies with the seasons) makes positioning the collectors difficult. Either they will be placed in an average position, which is never the best, or some attempt will be made to track the sun, and that requires sophisticated technology.

We therefore have a very simple question: what can we do with a diffuse, intermittent, moving form of energy? The answer is clear: we cannot do anything with it directly. Since it is diffuse it needs a very large area of collectors; since it is intermittent it needs to be stored; and since it is moving, it needs to be tracked. Each of these constraints poses technical, economic and social problems that make solar energy very poorly competitive compared with other energy sources.

It is almost impossible to predict what will happen with government support. It may increase, or it may vanish from one day to the next if any particular drawback becomes apparent. In any case, even with this support, solar energy has never succeeded in breaking even financially.

### **III. Solar technologies**

In practice there are only two types of application:

- Panels that produce electricity;
- Panels that heat water.

That leads us to compare these technologies with other means of producing electricity or hot water.

#### *A. Electricity production*

Electricity production may be broken down into two distinct situations:

- Production for resale (connected to the grid);
- Production for local use.

In both cases a number of basic technical factors add to the ‘structural’ difficulties described above:

- The manufacture of cells to transform light into electricity is a delicate and very high-tech process;
- It requires considerable investment in both research and equipment;
- It depends on rare materials, and so their availability and price influence the final price of the product;
- It is a very costly process;
- Yields are very low, in the order of 6%–15% depending on the industry, which may rise to 20%–25% if research is successful.

France was initially a major player in research on photovoltaic technology (producing electricity from sunlight), but it has practically disappeared from the industrial process (see the Poignant report, pp. 101–103). According to *societe.com*, Photowatt (a subsidiary of EDF Energies Nouvelles) is being wound up with a net deficit of 82 million euros for a turnover of 160 million euros (2011 figures). It presented itself as follows:

‘Photowatt is the only integrated French manufacturer in the solar-power industry. It designs and manufactures silicon-based photovoltaic modules, producing all the components (ingots, wafers and cells) itself. Deeply committed to R&D, the manufacturer also researches high-efficiency solar cells.’

Source: Photowatt, ‘La société.’

Link: <http://www.photowatt.com/en/>

## 1. Production of electricity for resale

Here we come up against a real problem. Since it is necessary to connect to the grid, these technologies have to be competitive with respect to other energy production methods. Yet that is definitely not the case. Photovoltaic technology in all its forms is only able to produce tiny amounts of energy at very high cost. Huge plants are needed to produce significant amounts. We will begin with some technical factors.

### *Technical factors*

The technology is that of ‘photovoltaic panels,’ of which there are two main versions: the older one is silicon-based and the more recent one is ‘thin layer’ based. See the Poignant report to the National Assembly in July 2009, for example. These technologies are far from established and are constantly developing.

Source: Report on photovoltaic energy submitted to the National Assembly by Deputy Serge Poignant, July 2009.

Link: <http://www.assemblee-nationale.fr/13/pdf/rap-info/i1846.pdf>

### *The lifespan of photovoltaic panels*

There is no precise information on this issue. The lifespan of a photovoltaic panel would seem to be around 20–25 years, according to their manufacturers. The problem is that they themselves will have disappeared well before then!

In 2010 Photowatt guaranteed its solar modules for just five years (Link: <http://www.photowatt.com/fr/documentation/garantie>), but this page had disappeared by 2015.

Cell efficiency diminishes with age. A separate issue is that a photovoltaic panel is by its very nature fragile and exposed. It may fall victim to falling branches or rocks. Hail no longer seems to be a problem since modern glass panels are strong enough, but the panels on a rent-controlled housing development near Toulouse were destroyed by hail in 1988.

Amusingly, calculations seem to show that the panels become profitable only after 20–25 years, in other words, after their expected lifespan.

### *An incredibly subsidized market*

We will look at the methods used by ADEME (Agence de l'Environnement et de la Maîtrise de l'Energie—French Environment and Energy Management Agency) to promote development of the industry. ADEME's intellectual dishonesty has been reported before, in the 'SCM Letter' of December 2008.

In the document '*Le marché du solaire photovoltaïque en France et dans le monde*' [*The photovoltaic solar market in France and around the world*], in ADEME & vous: Stratégie & études No. 3, June 12, 2007, ADEME wrote:

'Two types of photovoltaic installations coexist in France: systems on isolated sites, independent of the electric grid, and systems connected to it. Historically, the French photovoltaic market was oriented toward applications on isolated sites. Since 1999 it has turned more toward 'grid-connected' applications due to the involvement of French players in the industry. Today, the annual volume financed on isolated sites (0.3 MW) has become negligible given the financing needs of connected sites (over 14 MW). The cumulative power of grid-connected photovoltaic applications in France on the ground in 2006 is more than double that of isolated sites [...].

'The announcement of the new feed-in tariff in July 2006 together with a tax credit for private individuals gave an appreciable boost to the market, which grew by 122% between 2005 and 2006. This result is even more remarkable since the feed-in tariff only took effect in mid-2006.

'The French overseas departments and territories, together with Corsica, account for more than half of the power financed to date. Three overseas regions (Martinique, Guadeloupe and Réunion) together have more installed power than the 22 regions of mainland France (16.6 MW compared with 12.9 MW). Réunion became the French market leader in 2006. By way of example, the 2006 market was 8.4 MW in the overseas departments and Corsica and 6 MW in mainland France. This geographical distribution reflects particular measures taken in terms of tax breaks and the feed-in tariff for photovoltaic electricity, which was twice as high in the overseas departments, Corsica and Mayotte as in mainland France until July 2006. It is also because the Government, ADEME and its local partners want to concentrate the installation of photovoltaic generators in the areas with the highest electricity production costs.'

Source: '*Le marché du solaire photovoltaïque en France et dans le monde*' [*The photovoltaic solar market in France and around the world*], in ADEME & Vous: Stratégie & études No. 3, June 12, 2007. Link: <http://www2.ademe.fr/servlet/getBin?name=6B643232C196744AF9F9604D6CDBF9301187766101582.pdf>



The changes in photovoltaic electricity feed-in tariffs are shown below:

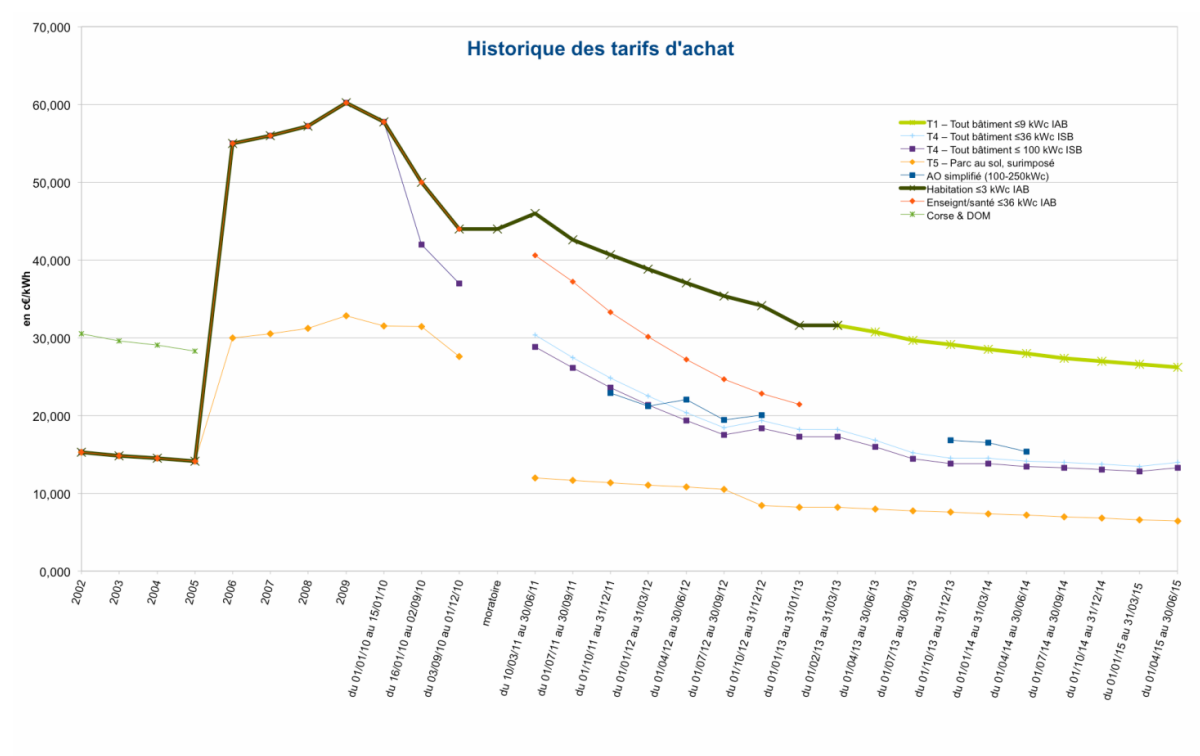


Figure 1. History of the main photovoltaic electricity feed-in tariffs [Source: HESPUL]

Key:

Historique des tarifs d'achat	History of feed-in tariffs
en c€/kWh	in euro cents per kWh
T1 – Tout bâtiment ≤9 kWc IAB	T1—Any building ≤9 kWp building-integrated
T4 – Tout bâtiment ≤36 kWc ISB	T4—Any building ≤36 kWp building-applied
T4 – Tout bâtiment ≤100 kWc ISB	T4—Any building ≤100 kWp building-applied
T5 – Parc au sol, surimposé	T5—Ground-mounted or above-ground solar farms
AO simplifié (100-250kWc)	Simplified call for tenders (100–250 kWp)
Habitation ≤3 kWc	Home ≤3 kWp
Enseignant/santé ≤36 kWc IAB	Education/healthcare ≤36 kWp building-integrated
Corse & DOM	Corsica and French Overseas Departments
du [date] au [date]	from [date] to [date]
moratoire	moratorium

Source: Photovoltaïque.info, 'Chiffres clés' ['Key figures']  
 Link: <http://www.photovoltaïque.info/Chiffres-cles.html#HistoriquedestarifsdachatkWh>

For comparison, bear in mind that the price for nuclear energy is 2 euro cents per kWh!

What is truly remarkable is that:

- The French Government forces EDF to purchase the electricity produced by inefficient devices at very high prices. That, of course, results in a rise in everybody's electricity bill—in other words, it is a tax;

- This tax revenue is spent in the form of a variety of support mechanisms in regions hungry for subsidies where activity levels are low;
- Despite that, the number of photovoltaic installations connected to the grid remains extremely low.

It is certainly possible to think up an amusing trick. Since the feed-in rate for electricity is higher than the usual price, you just need to plug a projector into the normal electric circuit, point this projector at the solar panel (and you can do this both day and night!) and sell back the electricity it produces. Unfortunately this trick would not work in practice because the solar panel is not very efficient and the price difference does not make up for the energy wasted.

The summary that follows is particularly instructive, and back in 2008 it provided a good explanation for the absurdity of the finance plan. It is the report 'L'inadéquation du mode de subvention du photovoltaïque à sa maturité technologique' ['The mismatch between the way photovoltaics are subsidized and their stage of technological development'], by Dominique Finon of CIRED (Centre international de recherche sur l'environnement et le développement [International Environment and Development Research Center]), December 2008. It is worth reading in 2015:

'The spectacular growth in the photovoltaic markets in various countries gives the illusion that this technology is taking off commercially, while in fact it is based on the development of markets that are highly subsidized by feed-in tariffs to boost the development of large-scale photovoltaic manufacturing capacities in those countries.

'The markets would not exist without them. France has followed the lead of the other countries in the hope of building a domestic industry fueled by the development of its domestic outlets.

'The choice and concept of the feed-in tariff pose three problems. First, the feed-in tariff is not the best instrument for the current stage of PV technology, which is not yet at the pre-commercial level, which means having tariffs four or five times higher than for wind power. It would be preferable to increase the level of R&D in all sectors, particularly the far less advanced thin-layer sectors, and to limit market development to schemes like 10,000 PV roofs through investment subsidies in order to demonstrate the technology.

'Secondly, even if we imagined that it would be justifiable to use this instrument because the technology was deemed to be at the pre-commercial stage, the French system is poorly thought-out in four respects:

- the length of commitment to the tariff for each new installation and the lack of any reduction in the feed-in tariff over the 20-year period of commitment;
- the pointless addition of investment support through tax credits, VAT relief and, at regional level, investment subsidies and subsidized loans;
- the lack of any tariff reduction for new installations, even though the future costs of this scheme could be limited up-front through the quick reductions that would come with cost changes;

- the lack of any tariff differential between sectors at different stages of maturity for different PV uses, which tends to penalize the thin-layer sectors and contribute to the technological lock-in that is occurring worldwide in the less promising crystalline silicon techniques.

‘Thirdly, the industrial goal of constructing a photovoltaic sector in France by boosting the development of a domestic market with these tariffs will never be achieved in the context of globalized competition, since some countries’ industries have taken the lead because of support policies at an earlier stage. The scheme will increasingly take money from French electricity consumers’ pockets over a 20-year period without making the French crystalline Si industry take off. The scheme will serve to subsidize the industry in other countries (Japan, Germany, the United States, and now China).

‘An ambitious program of R&D subsidies and investment subsidies targeting thin-layer technology and favoring French manufacturers with a view to demonstrating the technology appears to be a much more effective solution in the medium and long term.’

Source: ‘L’inadéquation du mode de subvention du photovoltaïque à sa maturité technologique,’ [‘The mismatch between the way photovoltaics are subsidized and their stage of technological development’] by Dominique Finon, CIRED (Centre International de Recherche sur l’Environnement et le Développement), December 2008.

Link: [http://www.centre-cired.fr/IMG/pdf/WP\\_Finon\\_Photovoltaic\\_tarif\\_CIRED\\_LARSEN.pdf](http://www.centre-cired.fr/IMG/pdf/WP_Finon_Photovoltaic_tarif_CIRED_LARSEN.pdf)

In other words, it was all utterly absurd: the French taxpayer was being forced to subsidize unprofitable types of manufacturing, and by doing so was benefiting foreign industries!

Here is an excerpt from L’Usine Nouvelle, January 11, 2010, which clearly shows the government’s uncertainty:

‘Production on the fringe

‘French electricity production in 2013 was approximately 550.7 TWh, while photovoltaic production was approximately 4.7 TWh, or 0.85%.’

The reason for this poor development relates to the facts we presented at the outset: solar energy is not profitable compared with other energy sources because it is diffuse and intermittent.

Source: L’Usine Nouvelle, ‘Les tarifs du photovoltaïque officialisés.’ [‘Photovoltaic tariffs made official’] January 2010.

Link: <http://www.usinenouvelle.com/article/les-tarifs-du-photovoltaique-2010-2012-officialises.N117210>

### *State of the market*

It is far from brilliant, with excess production capacity for panels (which are selling badly) and huge losses.

The trouble started in 2008. Here is an excerpt from the article ‘Solar glimpses the way out of the crisis,’ by Frank Stassi, November 5, 2009, problematiques.fr:

‘Affected by the crisis, solar power professionals are banking on the effects of the Grenelle 2 law and on recovery to confirm new projects.

'The German manufacturer of photovoltaic solar panels Q-Cells announced a loss of almost 700 million euros in the first half of 2009, testifying to the difficulties facing the industry at present. Badly hit by the crisis, the sector must also face up to a problem of overcapacity, since a large number of players have been investing heavily in a market in which growth has been held down by an unfavorable economic context.

'According to the American market intelligence firm iSuppli, new installations amounted to somewhat less than 4 gigawatts in 2009, while panel production reached a total power of 7.5 gigawatts. The market is oversaturated. *'For 12 to 18 months the situation will be difficult for those who have recently invested heavily in production capacity,'* was the explanation given to L'Usine Nouvelle last spring by Marc Vogeleisen, CEO of the French subsidiary of Enerqos, an Italian manufacturer that recently moved into France.

'When Silicium de Provence, the flagship project for a solar silicon manufacturing plant, went into receivership, it was a death knell for the industry's over-rapid expansion. The initiative had been launched in 2006 to benefit from the silicon shortage—today largely overcome—by bringing together a major panel of partners, including a Dutch renewable energy company and EDF Energies Nouvelles. Torpedoed by a 30 million euro debt, the Provence plant will never see the light of day.'

Source: 'Le solaire entrevoit la sortie de crise,' ['Solar power glimpses the way out of the crisis'] by Franck Stassi, problematiques.fr, November 5, 2009

Link: <http://www.businessmarches.com/le-solaire-entrevoit-la-sortie-de-crise/>

This is what we have found on Solairedirect, one of these companies, which presents itself as follows: 'Solairedirect is the first operator entirely dedicated to solar electricity production in France,' 2010 ([www.solairedirect.com](http://www.solairedirect.com)).

Editorial by the CEO, Thierry Lepercq:

'Fossil fuel resources are limited and we know that by emitting CO<sub>2</sub> into the atmosphere they are the primary drivers of global warming. Polluting and increasingly expensive, they are liable to degrade our environment, impoverish us, and cause geopolitical tension. A paradoxical situation, since energy is supposed to help improve our well-being.

'Unlike fossil energy, solar energy is inexhaustible, does not emit CO<sub>2</sub>, and is available everywhere. Compared with alternatives like nuclear or biofuels, it has the advantage of not producing toxic waste or impinging on food crops.

'With photovoltaic solar electricity, Solairedirect is not only providing a choice for a new form of energy, but also proposing a new energy model that is accessible to all. A model in which everybody can contribute to the public good by becoming a producer of clean, abundant, and locally produced energy.

'By fitting out our home roofs, our company buildings, or installing solar farms in our communities, we can all create a smarter new energy network. A decentralized network of producers and not merely a network of consumers that operates in a centralized and therefore vulnerable manner.

'To help establish this new model, Solairedirect has adopted an industrial and service approach to make it financially accessible to everybody and easy to put in place.

‘In this way, each of us can make the right choice for our environment and the environment of future generations, while also getting an additional source of income from the outset.’

In 2013, the last year in which the company posted its accounts, Solairedirect announced a turnover of 88 million euros over 15 months, representing an operating loss of 7 million euros. Its debts amounted to 236 million euros and its equity capital to 59 million euros.

Source: Bilan SolaireDirect, Societe.com

Link: <http://www.societe.com/bilan/solairedirect-492490057201303311.html>

According to Le Figaro in 2013:

‘Figures from the Solar Energy Observatory show that the sector is completely paralyzed.

‘The first quarter of 2013 confirmed the strong slowing trend in photovoltaic activity down to its lowest level. The sixth edition of the Solar Energy Observatory, by the think tank France Territoire Solaire in partnership with the consulting firm Kurt Salmon, came out on Wednesday and paints a very bleak picture of the situation. Since the beginning of the year, less than 100 megawatts (MW) have been connected to the grid, seven times less than a year ago. To meet the target of 20,000 MW installed by 2020, the industry has to install at least 2,500 MW a year in France!

‘Another sign of the collapse in the photovoltaic market is that none of the calls for tenders issued by government administrations for large ground-based plants has met with any uptake at all. In the end, given the increasingly disadvantageous economic conditions (with the lowering of feed-in rates for solar electricity), around 50% of the planned installations of less than 100 kilowatts peak power (kWp)—on warehouses, barns and medium-sized house rooftops—have been abandoned. ‘It’s simple, the whole industry is at a standstill,’ remarks Daniel Bour, president of the Observatoire.

‘For Jean-Louis Bal, president of the Renewable Energies Association (Syndicat des énergies renouvelables—SER), like many professionals, France is still feeling the effects of the moratorium decreed by the Fillon administration to deal with the “solar bubble.” It was a case of limiting the cost borne by all electricity consumers in the form of public support for this emerging sector. The installations currently connected to the grid were set up after the moratorium with less attractive feed-in tariffs and capped annual volumes. Investors criticize the administrations particularly for their equivocation, which made them less visible at a time when bank loans were drying up. On top of the tariff difficulties, there were also administrative obstacles. ‘The procedures for submitting applications have become so cumbersome that time management prevents any development,’ complains Bour.

‘The rise in the cost of connecting to the grid (from 10% to 15%), which in Germany is not borne by the investor, is another commonly mentioned constraint. Ultimately, mass competition from Chinese panels—which Brussels is trying to stem with its customs duties—has penalized the handful of French manufacturers. Admittedly, Energy Minister Delphine Batho took a few emergency measures early this year, with an increase in certain buyback tariffs thrown in, ‘but they are not going to change the face of things,’ Bal points out.

‘The market cleaned up

‘Yet the professionals do not see the cut in subsidies as marking the end of the solar industry. ‘On the contrary,’ explains Bour, ‘the market has been cleaned up and new entrants now know what

to expect. In parallel, our industry is becoming ever more competitive, with resale prices of around 10–11 cents per kilowatt-hour (kWh) for ground-based plants in sunny regions.’ This price should be compared with around 7 cents/kWh for coal, 8 cents for natural gas and a range of 6–9 cents for electricity from the future European Pressurized Reactor (EPR), according to the French Audit Office. In contrast, the price of solar energy for residential installations remains very high, at 25–30 cents/kWh.

‘Can the ongoing energy debate in France, which should give rise to a guideline in the next few months, improve the situation? “We hope a new economic model will come out of it,’ replies Bal, ‘which could take own consumption into account, and that has the major advantage of cutting the cost to the community.” Thierry Mueth, President of the solar energy association Enerplan, fears a triple threat—“no visibility, no risk taking, no investment”—that could destroy solar energy in France for good.”

Source: Le Figaro, ‘L’industrie photovoltaïque en France est au point mort’ [‘The photovoltaic industry in France is at a standstill’], June 18, 2013.

Link: <http://www.lefigaro.fr/conjoncture/2013/06/18/20002-20130618ARTFIG00700-l-industrie-photovoltaique-en-france-est-au-point-mort.php>

## **2. Local photovoltaic solar energy**

This is a very old and widespread application involving isolated devices that consume little electricity, such as traffic signs and telecommunications along highways. Another example is pocket calculators.

The report by the Académie des Technologies [Technology Academy] provides a good presentation of them:

‘Autonomous applications with storage

‘These applications were the area favored in the early days of photovoltaics as they made it possible to bring a little energy to regions with no electrical grid. The aim in developing countries is to contribute to economic development, even if the philosophies differ between rural electrification and first electrification. This market is dominated by photovoltaic kits of up to 100 Wp, allowing for the use of a few fluorescent tubes and a television for a few hours a day. It also includes community installations, such as for pumping water, refrigerating medical products or powering a community television.

‘Lead battery storage is still the best compromise between price and lifespan (5–7 years). However, its major drawbacks (maintenance and safety) hinder the widespread development of this form of electrification.

‘There are also autonomous domestic and professional applications in industrialized countries, including the electrification of isolated second homes and refuges, signage and telephone communications along highways, signage and advertising in urban areas, marker buoys at sea, cathodic protection, and telecommunications, etc. The power range extends from one watt to several kilowatts, and batteries have to provide an energy reserve to cover several sunless days. Recent battery technologies, especially lithium ion, are becoming competitive as a result of advances spurred by other applications, and the development of electric or hybrid vehicles is likely to bring costs down considerably.’

Source: Report to the Académie des Technologies: 'Les perspectives de l'énergie solaire en France' ['Solar energy prospects in France']; Energy and Climate Change Committee; Solar Energy Working Group, July 2008.

Link: [http://www.orientation-paysdelaloire.fr/mediatheque/doc\\_num.php?explnum\\_id=19123](http://www.orientation-paysdelaloire.fr/mediatheque/doc_num.php?explnum_id=19123)

It is obvious, however, that the devices powered in this way are fragile and not easily moved. When the Defense Ministry needs to produce electricity for operations abroad, it resorts to standard generating sets and not solar panels.

Let us imagine a Bedouin in the desert who wants to calculate Pi to various decimal places, which is as good an occupation as any other. As he cannot do it in his head, he needs a laptop computer. To power this computer he will need a solar panel covering around 1 m<sup>2</sup> (10 sq. ft.), producing 50 Wh, and weighing 10 kg. The laptop is no longer portable.

### *B. Examples of threatened or abandoned solar/photovoltaic projects*

Here are eight solar/photovoltaic projects that have been abandoned because they are no longer supported by the government:

- Marchegay Technologies in Luçon, western France, specializes in glasshouses and photovoltaic panels and is close to being wound up (announcement dated October 26, 2015).

'Purchased in 2011 by an investment fund, Marchegay has been marking time for the last few years and has recorded very little activity in its traditional markets—photovoltaics and greenhouses. Even so, its order books guarantee it a year's work and a turnover of 17 million euros, but the company has major financial problems. "We no longer have enough working capital to purchase equipment," explains staff spokesman Anthony Lelaure. In receivership since the summer, the company has only received a single offer to buy it out, from its current CEO. "Mr. Champain has made a firm offer," says Lelaure. "It means work can continue on the Luçon site and it saves 75 of the 105 jobs at stake." There is still a 400,000 euro shortfall to make up the 2.5 million euros needed for the buy-out after BPI, which had not yet given its final agreement, pulled out.'

- Société Nouvelle Areacem (SNA), which manufactures disks and solar panels in Tourouvre, Normandy, is in receivership (announcement dated October 4, 2015).

'This company, which employs 117 people, was placed in receivership at its own request by the Alençon Commercial Court. This six-month period of receivership will enable SNA to 'reorganize itself so as to achieve a plan to continue its operations.' The company got into difficulties because of a large sum that it spent on an appeal to the labor relations board, according to Commercial Court President Jean-Luc Adda, who nevertheless says he is 'confident' that SNA will pull through.

'It should be noted that the company shed nine jobs in recent weeks (it employed 126 people last spring).'

- Clipsol, based in Aix-les-Bains in the Savoie region of eastern France, specializes in photovoltaics and has recently cut 40 jobs (announcement dated July 8, 2015).

‘Bearing the brunt of the energy sector crisis, the management has just announced a restructuring plan. This means that 40 of the 80 employees will soon be made redundant. Apart from difficult negotiations over generous redundancy packages, some employees originally not affected by the job cuts would like to have the option of taking voluntary redundancy with the same level of compensation.’

- EDF has decided to close down its subsidiary Nexcis, a photovoltaic research and development center in Rousset, southern France (announcement dated March 24, 2015).

‘At the beginning of March the management announced the closure of Nexcis. It is expected to close on July 31, 2015, as a result of the Government’s energy transition policy, since Nexcis is the only applied research center in France that deals with photovoltaic industrialization. Its employees (90 in 2012) are stunned by this sudden closure because the road map set out by EDF has always been adhered to and also a product that is now almost ready for mass-production should be rolled out very soon.’

- Facilasol, based in Dol-de-Bretagne in northwestern France, specializes in photovoltaic installations and has seen its workforce shrink from 59 to 8 since 2012 (announcement dated June 17, 2014).
- Vivenci, which specializes in renewable energies at its Paris headquarters, has just gone into compulsory liquidation (announcement dated March 21, 2014).

‘The Commercial Court in Paris (where the company is based) has just announced the compulsory liquidation of this company, which employs over 100 people at seven sites. Some 60 employees are losing their jobs in Pyrénées Atlantiques. A dozen are being made jobless in Bordeaux. Another 40 or so jobs are going in Paris, Blagnac, Toulouse, Saintes, and Cenon.’

- The photovoltaic plant specialist Solairedirect, based in Paris, is to cut 76 of its 176 jobs in France (announcement dated December 17, 2013).

‘In France, Solairedirect is getting ready to trim its sails. Its workforce in the country, currently numbering 160 people (down from 176 at the end of 2012), is going to drop below the 100 mark. ‘That does not mean we are abandoning France,’ CEO Thierry Lepercq is quick to point out. ‘To prove it, we have installed 200 MW in the last three years at a price close to 100 euros per megawatt-hour (MWh), which is quite simply one half of what offshore wind achieves.’

‘While the company is showing unashamed growth of 30%, these job cuts are justified by a buyback price that is not subsidized by the government.’

- Delayed construction of a solar plant at Thouars in western France leads Sillia to shut down a panel assembly line (announcement dated May 17, 2012).

‘After starting in late 2010 in a start-up unit in Louzy-Thouars, Sillia is packing its bags and moving its photovoltaic panel assembly line to its mother company, Lannion, in Brittany. Sillia’s location had been linked to the prospective development of the Tiper project, the conversion of the military area of Etamat into a solar farm and wind farm. ‘Mine-clearing at Etamat was running late,’ complain its employees. “And most of all the government put the brakes on the solar industry and locked down the market.”



‘Three employees who had been hired locally to scout out an expected development, which has remained on the shelf.’

Source: Trendeo

Link: <http://www.observatoire-investissement.fr/>

## IV. Thermal solar power

Solar energy can be used to produce hot water. This mainly concerns the building sector.

### *A. Inconsistent regulations*

An amusing press release from the Académie des Technologies focuses on the inconsistency of decisions made (December 5, 2014):

‘In preparation for the forthcoming French Thermal Regulations 2020 (RBR 2020) and the United Nations climate conference in December 2015 (COP21), the Académie des Technologies issued an opinion titled “La Réglementation thermique 2012, la future Réglementation Bâtiment Responsable 2020 et le climat” [‘The 2012 Thermal Regulations, the forthcoming 2020 Responsible Building Regulations, and the climate’], approved in November 2014, in which it recommended adjusting the thermal regulations according to the economic consequences for the end consumer and climate criteria.

‘Limiting GHG emissions, guaranteeing energy independence

‘Fact number one is that the analyses underlying the 2012 French Thermal Regulations (RT 2012) need to be clarified and updated, since they are no longer suited to today’s reality. In force since January 1, 2013, these regulations apply to the production of heat and domestic hot water in new buildings. They result from the research conducted into energy efficiency, one of the three pillars of the energy transition set out in the Energy and Climate Package (a 20% cut in greenhouse gas emissions, 20% renewable energy, and a 20% improvement in energy efficiency).

‘The statistics on the forms of heating used in new buildings show that the RT 2012 paradoxically highlight the fact that the electricity produced on our land is penalized to the benefit of imported fossil gas. In fact, choosing a high equivalence factor puts the electricity vector at a disadvantage compared with the natural gas vector, for both nuclear electricity and electricity produced from renewable energies (hydroelectric, wind, solar, etc.), which emit little or no greenhouse gases (GHGs).

‘This choice is designed to meet the European GHG emission reduction targets that France has signed up to; it also calls into question energy independence based on hydroelectric and nuclear energies, thereby worsening the trade deficit.

‘Additionally, a compensation package should be put in place for areas not served by the natural gas distribution network, while the electricity network is available throughout the country.

‘Basing the 2020 Thermal Regulations on final energy

‘Thermal regulations cannot be effective unless they are understood and taken on board by consumers, who can then adopt appropriate behavior. The Académie des Technologies

recommends basing the regulations on the energy actually received by the consumer at the meter (final energy) and paid for, rather than on a theoretically calculated primary energy where the consumer does not know whether it was produced from coal, natural gas, water, nuclear fuel, or another source.'

Source: Académie des technologies, 'Réglementation thermique 2020 et climat : l'Académie des technologies préconise de prendre en compte d'abord la consommation d'énergie finale et les émissions de gaz à effets de serre' ['The 2020 Thermal Regulations and climate: the Académie des Technologies recommends that final energy consumption and greenhouse gas emissions first be taken into account'], December 5, 2014.

Link: <http://www.academie-technologies.fr/blog/posts/reglementation-thermique-2020-et-climat-l-academie-des-technologies-preconise-de-prendre-en-compte-d-abord-la-consommation-d-energie-finale-et-les-emissions-de-gaz-a-effets-de-serre>

According to this amusing text, the effect of the 2012 Thermal Regulations was to encourage the use of imported gas rather than the consumption of electricity produced at home. Understand it if you can!

### *B. Costs*

The cost of a solar water heater may be found on the site of 'Les Energies Renouvelables'.

'So, without taking financial support into account, the average price of a solar water heater in 2015 for a family of four is 5,500 euros excluding VAT (including 1,300 euros for labor) for a water heating system with a collector mounted on the roof, and 6,200 euros excluding VAT (including 1,650 euros for labor) for a water heating system with a collector integrated into the roof.'

Source: Les Energies Renouvelables, 'Quel est le prix d'un chauffe eau solaire en 2015 ?' ['What is the price of a solar water heater in 2015?']

Link: <http://www.les-energies-renouvelables.eu/energies-renouvelables/quel-est-le-prix-dun-chauffe-eau-solaire.html>

It is perfectly clear from the figures that it is much more expensive to install a solar water heating system than a conventional one. For a tank-type water heater (electrical, connected to AC power) the cost is around 150–300 euros, depending on capacity and performance.

### *C. The state of the market*

The document 'Etats généraux de la chaleur solaire 2015' ['Solar Heating Convention 2015'], available on the Association Professionnelle de l'Énergie Solaire (ENERPLAN) website, states:

'Reviving the market through the confidence of the collective market: the SOCOL progress plan

'The collective solar thermal (STColl) market progressed up to 2012 due to:

- High thermal efficiency, more than 500 kWh/yr/m<sup>2</sup> for IdF collectors
- Dynamics of the construction of multi-unit low-energy dwellings (50 kWh pe/yr/m<sup>2</sup>)
- Emergence of the non-dwelling market (agriculture, tertiary, hotels) caused by the rise in fossil fuel prices
- Support from ADEME's Heat Fund

'Downturn in 2013 due to several factors:

- Crisis in the construction industry, with fewer houses being built
- Penalization of STColl by the RT2012 calculation engine (up to a 30% fall between the calculated regulation contribution and actual productivity)
- Right to overconsume in multi-user dwellings with RT2012 (57.5 kWh pe/yr/m<sup>2</sup> as of January 1, 2013, instead of the 50 allowed by the low-energy housing standard (BBC))
- Some adverse technical references (in the public call for tenders) due to a lack of competence in design, implementation or use
- Substantial recent fall in the price of fossil energy, adversely affecting the time needed to recoup the investment.'

Source: ENERPLAN, 'États Généraux de la Chaleur Solaire 2015' ['Solar Heating Convention 2015']

Link: [http://www.enerplan.asso.fr/index.php?option=com\\_content&task=view&id=1540&Itemid=204](http://www.enerplan.asso.fr/index.php?option=com_content&task=view&id=1540&Itemid=204)

According to Wikipedia:

'The 2013 market was down 19% compared with the 282,386 m<sup>2</sup> in 2012; the multi-unit housing market was down by as much as 21.7% (98,676 m<sup>2</sup> vs. 126,036 m<sup>2</sup> in 2012). Part of the decrease seen over several years was due to improved collector efficiency, since the average area of an individual solar water-heating system fell from 4.6 m<sup>2</sup> in 2007 to 4 m<sup>2</sup> in 2013, a 13% reduction. The market downturn was also linked to the economic crisis and the slowdown in the construction industry, but players in the thermal sector also think the sector's image has suffered from the controversy over the cost of subsidies for photovoltaics. In addition, the regulations have changed for the worse: the 2012 Thermal Regulations (RT 2012) put solar power for multi-unit dwellings at a disadvantage, and the sustainable development tax credit for 2014 was cut to 15% (25% as part of a work package) vs. 32% in 2013.'

Source: Wikipedia, 'Énergie solaire en France' ['Solar energy in France,' French-language version]

Link: [https://fr.wikipedia.org/wiki/%C3%89nergie\\_solaire\\_en\\_France](https://fr.wikipedia.org/wiki/%C3%89nergie_solaire_en_France)

#### *D. Support*

Support is being cut. Tax credits, which used to be 50% of the total equipment cost (including tax), are only 30% in 2015 (and subject to highly restrictive conditions).

#### *E. If we really have to invest in solar*

We advise doing so in a factory making deckchairs, the kind that were once used on board liners. There are no liners any more, but the deckchair is still commonplace.

It corresponds to a fundamental need of humankind, the need for rest. It permits the direct conversion of solar energy into a tan, without the need for expensive, fragile, bulky photovoltaic panels. A deckchair can be folded up and put out again easily. It is not very costly to produce and contains no products that are harmful to the environment, since it is made of wood and canvas, noble and ancient materials.

## **Chapter VIII**

### **Wind energy**

#### **I. General presentation**

There is an error of logic in wanting to produce electricity from the wind. As it is so irregular, this electricity will never be able to compete with other forms of production, particularly nuclear.

The wind, unlike the sun, has always been used by people as a source of energy, in sailboats, windmills for grinding grain, wind pumps for pumping water or powering a variety of machines, etc.

Using the wind to propel a vehicle by means of a sail costs nothing, but it disappeared as soon as other types of motor appeared because the wind is eminently variable (sometimes too strong and sometimes too gentle) and tends to blow in particular directions, and it is difficult to sail against the wind.

We will begin by comparing the different kinds of energy, which will help to highlight the qualities and drawbacks of each kind.

#### **II. The demand for electricity varies over time**

The demand for electricity in every country varies in three separate cycles: yearly, weekly and daily. The variations depend on the country and the climate, but they are generally considerable. In France, the minimum demand may be 30 GW at off-peak times in summer, rising to 90 GW at peak consumption times in winter. That means that the minimum and maximum consumptions differ by a factor of around 3.

The reason for these variations is obvious: there is a permanent demand and a demand that depends on activity. EDF tried to 'smooth out' activity by introducing a cheaper off-peak tariff, but that only concerns a very small part of activity and the amplitude of variation remains considerable.

One could of course 'do something' with the electricity that is not consumed, such as transform it into direct current and charge batteries, produce hydrogen, etc.

The most credible industrial solution is the one used by EDF—pumping water from below a dam back up to the top again. But its efficiency is low and the installations are expensive.

In France, EDF makes a great effort to anticipate demand and tries to produce exactly what the population will need—neither more nor less—at any given moment.

The rule of thumb that can be deduced from this is that there is no rational, economically sound solution to the storage problem. Therefore, only two types of electricity production are credible:

- Forms that produce permanently (which can be used to meet the ‘common basis’ of consumption);
- Forms that can be operated at will, which will be used to meet the variations in demand.

A form of electricity production that depends on natural variations is therefore essentially of little interest, because those natural variations will not be linked to the needs of the population. For example, solar produces most in summer, when demand for electricity is lowest.

A thermal power plant can be controlled, as can electrical production from a dam, at least so long as it contains water, which is generally seasonal.

Wind energy in mainland France has little appeal because wind patterns are variable and do not correspond to the cycles of consumption. When it is very cold in winter, there is no wind. It would therefore be necessary to supplement wind energy production with a conventional form of production, which would not be used when the wind was blowing. But what would be the point?

The only situation in which wind energy may be attractive is offshore, where the wind blows more often. But it is not as simple as that, because production does not only require there to be wind, but the wind must also be constant. We will come back to that.

### III. General data for wind production

Extreme fantasy reigns in the names and units used (designed, we believe, to mislead the general public). ‘Installed power,’ ‘efficiency,’ and ‘load factor’ are used with completely different meanings to those that these words usually have. We have abandoned such technical terms in favor of a transparent vocabulary.

#### *A. The different kinds of wind power*

There are two scales of production:

- Large-scale (or industrial) wind power, financed by local authorities or large corporations, and connected to the electrical grid; these are turbines rated at over 250 kW on towers up to 180 meters (590 ft.) in height;

- Small-scale wind power, set up by individuals and connected to the grid or not (isolated site); the towers are 10–35 meters (33–115 ft.) in height.

There are two types of location, onshore and offshore.

Large-scale wind turbines are grouped in wind farms of 5–50 units. Their average power is 2 MW. Their lifespan is claimed to be 20 years, but that depends on turbine quality and weather conditions. A number of websites claim a longer lifespan offshore, since there is less turbulence.

Source: Danish Wind Industry Association, website accessed November 2015.

Link: <http://www.windpower.org/en>

Source: Energies, 'Le coût de l'énergie éolienne - Prix de rachat' ['The cost of wind energy—Buyback price'], June 2008, website accessed November 2015.

Link: <http://energie-verte.blogspot.com/2008/06/cout-energie-eolienne.html>

Source: J. Buba, 'Le pari de l'éolien' ['The wind energy gamble'], Centre d'Analyse Stratégique, November 2009.

Link: <http://archives.strategie.gouv.fr/cas/system/files/a9a6f928d01.pdf>

Source: Wiki éolienne, The Wind Power collaborative project, website accessed November 2015.

Link: <http://eolienne.f4jr.org/en/start>

We are in principle skeptical about these claims, especially for offshore wind farms, where the operating conditions are more severe.

### *B. Wind turbine power*

The power of a device is measured in watts (one joule for one second). To give a very approximate idea, 1 MW is the power needed (on average) for 1,000 people (more or less, depending on the country, living standards, etc.). Household energy consumption obviously depends on the time and season, so the figure of 1 MW for 1,000 people is an annual average.

A 2 MW turbine could in theory provide power for 2,000 people, if it turned the whole time. But when it does not turn, it is useless!

Therein lies the difficulty, which the manufacturers get round by being less than honest with their vocabulary. When a turbine is announced as having a power of 2 MW, that is the power it can produce when operating at full speed in ideal conditions. If it operated for only 2,000 hours over the year (i.e. 23% of the time), it actually produced 4,000 MWh of energy. But that is not at all equivalent to a device that would produce 913 MWh of energy all the time.

In what follows, the power indicated for a turbine will always be its maximum power (what the manufacturers call 'installed power').

### C. What are the investment costs of a wind power project?

The investment cost or CAPEX (CAPital EXPenditure) represents the largest part of the cost of an onshore wind farm. For example, purchasing the wind generators is the first item, accounting for about three-fourths of the total investment.

The figures below come from the Commission de Régulation de l'Electricité [French Electricity Regulating Committee]:

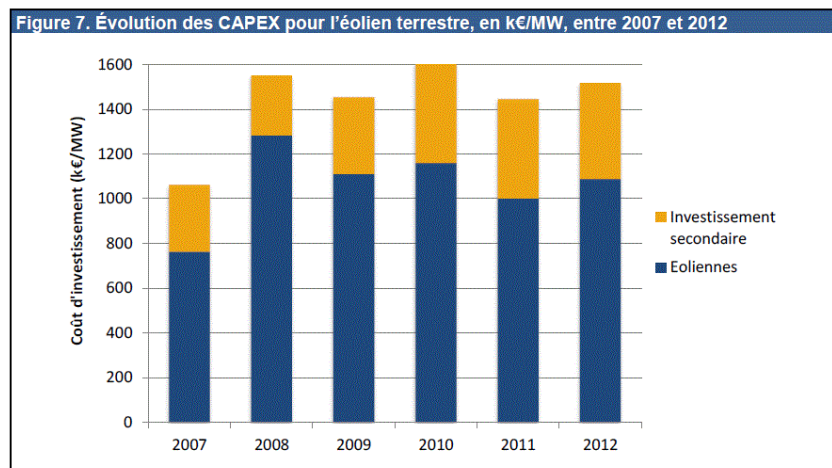


Figure 1. Changes in CAPEX for installed power 2007–2012

Key:

Figure 7. Évolution des CAPEX pour l'éolien terrestre, en k€/MW, entre 2007 et 2012	Figure 7. Changes in CAPEX for onshore wind power, in '000 euros/MW, 2007–2012
Coût d'investissement (k€/MW)	CAPEX ('000 euros/MW)
Investissement secondaire	Secondary investment
Éoliennes	Turbines

Source: Commission de régulation de l'énergie, 'Coûts et rentabilité des énergies renouvelables en France métropolitaine' ['Costs and profitability of renewable energies in metropolitan France'], April 2014, page 20.  
Link: <http://www.cre.fr/documents/publications/rapports-thematiques/couts-et-rentabilite-des-enr-en-france-metropolitaine>

Offshore is of course more expensive. The details announced for the Courseulles-sur-Mer wind farm are as follows:

Source: Ouest Normandie Energie marines, 'Projet éolien offshore posé - Les caractéristiques du projet'.  
Link: <http://www.west-normandy-marine-energy.fr/fr/projet-eolien-offshore-pose---les-caracteristiques-du-projet-gc17.html>

1.8 billion euros for 450 MW, i.e. 4 million euros per MW, more than double the previous figures.

## **IV. Comparison with other types of energy**

Comparisons are difficult, since the real costs are never disclosed. For example, research into nuclear energy has been financed by government credits through different budgets.

Nuclear plants: 3 million euros/MW (the EPR will be more expensive). The Financial Times estimates the cost of installing a 900 MW nuclear plant at 4 billion euros, or 4.4 million euros per MW. But the costs for nuclear energy are definitely not proportional to power.

Coal or gas-fired plants: 1.7 million euros/MW.

Again, beware of comparisons. A nuclear plant or a gas-fired plant operates the whole time, or nearly, whereas a wind-powered plant operates one-third of the time at best.

## **V. Implementation time for a wind-powered project**

Technically speaking, 2–4 years are needed in France. But most projects are subject to interminable court appeals by local people complaining of various nuisances.

## **VI. Availability of wind energy**

The term often used is ‘load factor,’ which represents the length of time a plant is operating and producing in one year. We prefer to say availability rate.

The sources indicate that in fact a wind turbine produces for 25–30% of the time, compared with 80% for a nuclear plant. The causes are different, however. A nuclear plant is not operational the whole time because sometimes it is under repair (generally planned); a wind turbine is not operational because there is no wind. For a wind turbine with an installed power of 10 MW, its actual production will be 3 MWh on average over the year.

Wind turbines only operate in a given range of wind speeds. If the wind is too light, the blades cannot turn; if it is too strong they are stopped for safety’s sake. Certain models are taken down completely during storms and re-erected afterwards.

Low resource availability can, in theory, be made up for in two ways:

- Wind farms can be located in places with different wind patterns, so that one will operate while the other is at rest;
- Another form of production is used in addition to wind to take over during windless periods.

The problem is that both solutions are equally absurd:



- Establishing several wind farms means they have to be connected together by extra-high-voltage (EHV) power lines covering hundreds or thousands of kilometers, which is very expensive and unprofitable.

EHV power lines come up against strong local opposition. It makes no difference if a power line carries nuclear current or wind current; the pylons are the same.

Technically speaking, transporting current over very long distances is unprofitable because of line losses; on this subject, see the article below:

Source: Groupe d'information sur les éoliennes [Wind Turbine Information Group], 'Le transport du courant électrique' ['Transportation of electric current'], website accessed November 2015.

Link: <http://www.leseoliennes.be/economieolien/transportcourant.htm>

- Adding another form of production, such as a coal or gas-fired power plant, means that one has to be built and, given that it is more profitable, why not just be content with this power plant!

It should also be remembered that a wind farm may be a technical headache for the grid manager, who will need accurate wind forecasts.

Source: J. Buba, 'Le pari de l'éolien,' ['The wind energy gamble'] Centre d'Analyse Stratégique, November 2009.

Link: <http://archives.strategie.gouv.fr/cas/system/files/a9a6f928d01.pdf>

According to the Wind Turbine Information Group, grid management has to be restructured, and problems have already been found in Denmark and Germany.

Source: Groupe d'information sur les éoliennes [Wind Turbine Information Group], 'Prévision de la demande et de la production' ['Forecasting demand and production'], website accessed November 2015.

Link: <http://www.leseoliennes.be/economieolien/previsioneolien.htm>

There will also be a need to connect wind farms to other, immediately available sources of electricity to ensure stability in distribution ('balancing reserves'). In fact, the wind is not stable, and electricity production needs to be stabilized. That is a different technical aspect than intermittence (instantaneous variations).

## **VII. Cost of wind production and other forms of energy production**

Production cost is a poorly defined concept, as it all depends on what is included (research? decommissioning?) and the length of operation. One could use the idea of selling price, subsidized or not, which is supposed to lead to profitability—after a certain time, at least.

Wind energy is more expensive per kWh than other energy sources:

'Renewable energy production costs are still high today compared with the prices of other energy sources. They also vary considerably from one form to another—and also within a single form—

because of the great diversity of parameters involved (level of risk, technical features of the installations, geographical location, etc.).’

Production costs in euro cents/kWh (2013 values):

- Offshore wind: 8.7–11.6
- Onshore wind: 6.2–10.2

Source: Cour des comptes [French Audit Office], ‘Synthèse du Rapport public thématique Juillet 2013 : La politique de développement des énergies renouvelables’ [‘Summary of the July 2013 public thematic report on the renewable energies development policy’].

For comparison purposes, the price per kWh for nuclear energy varies between 1.1 and 5 euro cents, and for natural gas between 3 and 5 euro cents, depending on the source.

Comparative production costs of all forms of renewable energy (2013 values) are given below, in euro cents per kWh:

Form	Production costs in c€/kWh (current value conversion factor 8%)
Solar thermal	19.5–68.9
Solar photovoltaic	11.4–54.7
Solar thermodynamic	9.4–19.4
Offshore wind	8.7–11.6
Onshore wind	6.2–10.2
Methanation	6.1–24.1
Biomass	5.6–22.3
Geothermal	5.0–12.7
Hydroelectricity	4.3–18.8

*Table 2. Comparative production costs of all forms of renewable energy  
[Source: Cour des comptes [French Audit Office]—ADEME data]*

‘Some forms are still far from the current production costs of nuclear electricity (4.95 euro cents per kWh in 2011).’

Source: Cour des comptes [French Audit Office], ‘Synthèse du Rapport public thématique Juillet 2013 : La politique de développement des énergies renouvelables’ [‘Summary of the July 2013 public thematic report on the renewable energies development policy’].

## VIII. Comparative power

This is shown in the table below:

Energy source	Power
Wind	The most commonly used machines today have a power of 2–3 MW
Nuclear reactor	1,000 MW

*Table 3. Comparative power of wind and nuclear*

Source: ADEME, 'L'éolien' ['Wind power'], August 11, 2014.

Link: <http://www.ademe.fr/expertises/energies-renouvelables-reseaux-stockage/passer-a-l'action/produire-lelectricite/leolien>

'Nuclear reactors in France have an average power of 1,000 MW. The latest wind farms often have 2 MW turbines, which means that 500 turbines would be needed to provide the same installed power as a nuclear reactor. Yet a nuclear reactor can operate at full capacity all year, apart from a few weeks offline for maintenance. A wind turbine only produces electricity roughly one day in three. Champagne-Ardenne is today the region with the most installed power at 870 MW, with 46 wind farms.'

Source: EDF, 'Combien d'éoliennes faudrait-il pour remplacer une centrale nucléaire ?' ['How many wind turbines would it take to replace one nuclear power plant?'].

Link: <http://jeunes.edf.com/question/combien-d-eoliennes-faudrait-il-pour-remplacer-une-centrale-nucleaire.11.91>

## IX. Acceptance by the general public

Unlike solar power, which enjoys some support from the general public (no noise, no nuisance, little impact), wind energy elicits some very negative reactions that have been echoed in the press on numerous occasions. Appeals are systematically lodged against every proposed wind farm, which of course delays work on them.

According to a CREDOC survey, 'the French are largely (72%) in favor of having wind turbines installed in their local areas.'

Source: Commissariat Général au Développement Durable [General Commission on Sustainable Development], 'Chiffres & statistiques : Baromètre d'opinion sur l'énergie et le climat en janvier 2009' ['Figures & Statistics: Opinion poll on energy and climate in January 2009'], April 2009.

Link: <http://www.developpement-durable.gouv.fr/IMG/pdf/CS026.pdf>

Anti-wind power associations have, however, been set up: the Fédération Environnementale Durable (FED) [Sustainable Environment Federation], 'Vent de Colère' ['Wind of Rage'], the Fédération Nationale des Associations de Sauvegarde des Sites et Ensembles Monumentaux [National Federation of Heritage Site Protection Associations], etc.

Their main arguments are as follows:

- They are noisy (they cannot be built within 1,500 meters [4,920 ft.] of homes); a number of sources claim that more recent turbines make less noise;
- They are eyesores;
- They take up space;
- Turbines can kill certain birds;
- They can interfere with radar (civilian or military), which is the reason why one-half of the applications to build wind farms in the United Kingdom are turned down.

Source: Global et Local, 'Vestas expérimente des pales furtives contre les problèmes de radar' ['Vestas tries stealth blades to beat radar problems'], January 28, 2010.

Link: [https://www.global-et-local.eu/spip.php?page=iphone\\_article&id\\_article=2073](https://www.global-et-local.eu/spip.php?page=iphone_article&id_article=2073)

The formalities for obtaining permits are long and complex. In October 2009 the French Senate tightened up the conditions for installing wind turbines:

'Senators have decided to tighten up the conditions for installing onshore wind turbines. Starting in 2011 they will be regarded as facilities subject to environmental protection measures [installations classées pour la protection de l'environnement (ICPE)], which will make the authorization procedures more complex.'

Source: Vedura, 'Eoliennes : durcissement des conditions d'installation' [Wind turbines: tighter installation conditions'], October 2009.

Link: <http://www.vedura.fr/actualite/5927-eoliennes-durcissement-conditions-installation>

## **X. Economic situation of the sector**

### *A. An example*

Vestas France is the leading French producer in terms of connected power (382 MW in 2014). In 2014, it had equity capital of 13 million euros, debts of 223 million euros, a turnover of 416 million euros, a net profit of 1.5 million euros, and 250 employees.

### *B. Profitability*

An excerpt is given below from the report 'Coûts et rentabilité des énergies renouvelables en France métropolitaine' ['Renewable energy costs and profitability in metropolitan France'] by the Commission de Régulation de l'Energie (CRE) [French Energy Regulating Committee], 2014:

'This analysis establishes the profitability of facilities for electricity production from renewable energy based on a representative list of facilities and, for the first time, on confirmed and verified data, in order to:

- Ensure that public support paid for by electricity end consumers does not give rise to excessive profits;

- Check that compulsory feed-in tariffs are suited in both level and structure to the technological and industrial realities of the sectors. [...]

‘These findings lead the CRE to issue the following recommendations:

- Invitations to tender should be used in preference to a single feed-in tariff;
- The compulsory feed-in tariff structure must be reviewed to prevent facilities from making excessive profits from improved conditions of sale; an invitation to tender can also be used to achieve this end;
- The term of the contract should match the actual duration of wind farm operation, and the tariff levels should be determined as a consequence of that. If the current duration is kept, the tariff level should be adjusted to take account of the sale of electricity on the markets, which will be possible after expiration of the contract;
- The tariff level, which has been unchanged since 2006, should be regularly revised to reflect changes in costs.’

A FranceTVInfo report (May 4, 2015) clearly explains why:

‘A team from Pièces à conviction [‘Incriminating Evidence’, a French investigative TV show] went to talk to a sponsor, the Canadian group Boralex, the third-largest wind power player in France. Its latest plant, a score of wind turbines in Champagne-Ardenne, cost a total of 61 million euros.

‘Subsidized energy

“But its efficiency is good, because we get quite constant winds in this region [...]; we have an open area, which is important, and we can turn the wind’s energy into plenty of electricity,’ says Patrick Decostre, General Manager of Boralex Europe.

‘The revenue from this existing wind farm—fifteen 30-megawatt (MW) turbines at the moment—amounts to 6 million euros per year, and investments are recouped in seven or eight years. Why? Wind energy is subsidized. EDF’s compulsory feed-in tariff for all production soars to 82 euros per megawatt-hour (MWh), double the market price, and these prices are guaranteed for 15 years. Hence the facilities soon become profitable.’

Source: FranceTVInfo, ‘Pièces à conviction’ : La très forte rentabilité des éoliennes’ [‘Pièces à conviction’ Wind turbines, a highly profitable business’], May 4, 2015.

Link: [http://www.francetvinfo.fr/societe/video-pieces-a-conviction-la-tres-forte-rentabilite-des-eoliennes\\_889215.html](http://www.francetvinfo.fr/societe/video-pieces-a-conviction-la-tres-forte-rentabilite-des-eoliennes_889215.html)

## **XI. Offshore wind energy**

According to Wikipedia (French version):

‘France’s wind power potential is 40 GW offshore (to produce 150 TWh a year).’

Source: Wikipédia, ‘Éolienne offshore’ [‘Offshore wind power’]

Link: [https://fr.wikipedia.org/wiki/%C3%89olienne\\_offshore](https://fr.wikipedia.org/wiki/%C3%89olienne_offshore)

According to France Énergies Marines:

‘The energy density of an offshore wind farm, i.e. the power installed in 1 km<sup>2</sup> of sea surface area, gives an idea of the potential productivity of a site. It is in the order of 8 MW/km<sup>2</sup> on average for 2–3 wind turbines installed per square kilometer, and can reach 15–20 MW/km<sup>2</sup> in very windy sites.

‘An offshore wind turbine begins to operate in a force 2 wind on the Beaufort scale (approximately 10 km/h or 3 m/s or 6 knots), reaches cruising speed at 6 Beaufort (45 km/h or 12 m/s or 24 knots), and has to be shut down at 11 Beaufort (110 km/h, 30 m/s, 60 knots).

‘Advantages of offshore wind energy:

- Offshore wind technology has benefited from many of the recent technological advances in onshore wind, one of the most mature forms of renewable energy;
- Since the sea is flat, winds encounter fewer obstacles and are therefore more sustained, more regular and less turbulent than over land. At equal power, an offshore turbine can produce up to twice as much electricity as an onshore turbine;
- There are large areas of sea with no obstacles where the devices can be installed, subject to consultation with other sea users.

‘Drawbacks:

- An offshore turbine currently costs around 30–50% more to install than an onshore turbine;
- Although the winds at sea are more constant than over land, offshore wind energy is intermittent as well;
- The turbine is subjected mechanically not only to wind stresses on the blades and structure, but also the stresses caused by currents;
- Installing turbines at sea is more complicated than on land. Special vessels have to be used. Turbine maintenance is also more complicated and more expensive than on land. It may be several days before a fault can be repaired, resulting in lost production;
- Connection to the power grid involves laying submarine cables to the coast, which may be several miles away. Direct current transmission associated with electronic power converters has to be used for long distances to minimize electrical losses.

‘The cost of wind facilities (onshore and offshore) in 2020 is likely to add around 5.37 euros a year to the electricity bill of a home consuming 2,500 kWh a year (the current average for a home not using electricity for heating). That corresponds to roughly 1.5% of the total bill, at a price of 0.15 euro cents per kWh.’

Source: France Énergies Marines, ‘L’énergie éolienne en mer’ [‘Offshore wind energy’].

Link: <http://www.france-energies-marines.org/Les-energies-marines-renouvelables/L-energie-eolienne-en-mer>

According to Natura-Sciences:

‘In France, two calls for tender have already set the planning process in motion for six offshore wind farms with a total power of around 3,000 MW.

‘Four farms will come into service between 2018 and 2020:

- Saint-Nazaire (Loire-Atlantique): 480 MW
- Courseulles-sur-Mer (Calvados): 450 MW
- Fécamp (Seine-Maritime): 498 MW
- Saint-Brieuc (Côtes-d’Armor): 500 MW.

‘Two farms will be completed in 2023:

- A farm off Le Tréport (Seine-Maritime): 496 MW
- A farm in the Atlantic, between Yeu Island and Noirmoutier: 496 MW.’

Source: Natura-Sciences, ‘Éolien offshore, où en est la France fin 2014 ?’ [‘Offshore wind power—where is France at the end of 2014?’], December 18, 2014.

Link: <http://www.natura-sciences.com/energie/eolien-offshore-france797.html>

## XII. Development of wind power in France

France has major potential, coming second for ‘wind potential’ after the United Kingdom.

Grid-connected wind power (MW) in France has grown as follows:

Year	Wind power connected per year (MW)	Cumulative grid-connected wind power (MW)
2001	94	94
2002	35	129
2003	90	219
2004	119	338
2005	413	751
2006	749	1,500
2007	752	2,252
2008	1,075	3,327
2009	1,246	4,573
2010	1,189	5,762
2011	952	6,714
2012	822	7,536
2013	621	8,157
2014	1,114	9,271
June 2015	498	9,769

*Table 4. Grid-connected wind power by year and cumulatively 2001–2015 (MW)*

Source: RTE, ‘Panorama de l’électricité renouvelable au 30 juin 2015’ [‘Panorama of renewable electricity as of June 30, 2015’], page 10.

Link: [http://www.rte-france.com/sites/default/files/2015\\_06\\_30\\_rte\\_panorama\\_elr\\_juin2015.pdf](http://www.rte-france.com/sites/default/files/2015_06_30_rte_panorama_elr_juin2015.pdf)

### XIII. Prospects in France

The European Commission's Climate Plan has set a target of 20% renewable energy in the energy mix.

Source: IESF, 'Faut-il être pour ou contre les éoliennes ?' ['Should we be for or against wind turbines?']

Link: <http://www.iesf.fr/upload/pdf/eoliennes.pdf>

More specifically, the targets set by the Grenelle Environmental Initiative in France are as follows:

		Target 2012	Target 2020
Total wind	Production (GWh)	26,000	58,700
	Installed power (MW)	11,500	25,000
Onshore	Production (GWh)	23,200	42,400
	Installed power (MW)	10,500	19,000
Offshore	Production (GWh)	2,800	16,300
	Installed power (MW)	1,000	6,000

*Table 5. Grenelle Environmental Initiative targets in France*

Source: Coe-Rexecode, 'Document de travail n°12 - Evaluation socio-économique du programme de production d'électricité éolienne et photovoltaïque' ['Working Document 12—Socioeconomic assessment of the wind and photovoltaic electricity production program'], 2009, page 29.

Link: [http://www.energies-renouvelables.org/portail/pdf/COMOP\\_10\\_Final.pdf](http://www.energies-renouvelables.org/portail/pdf/COMOP_10_Final.pdf)

In France, three regions are complementary in terms of wind patterns: the English Channel–North Sea coastline, the Atlantic coast, and the Mediterranean area.

Wind turbines are grouped into wind-energy development zones (ZDE—zones de développement de l'éolien). Since 2007 the local authorities have defined these zones.

According to J. Buba in 'Le pari de l'éolien,' ['The wind energy gamble'] 10–15% of wind farm projects could be affected by the crisis from 2011 onward.

Source: J. Buba, 'Le pari de l'éolien' ['The wind energy gamble'], Centre d'Analyse Stratégique, November 2009.

Link: <http://archives.strategie.gouv.fr/cas/system/files/a9a6f928d01.pdf>

### XIV. Feed-in tariff in France

As for solar power, the French Government has adopted an incentive package in France: a feed-in tariff of 8.2 euro cents per kWh for the first 10 years, and then between 2.8 and 8.2 euro cents per kWh for the next 5 years.

Source: J. Buba, 'Le pari de l'éolien,' ['The wind energy gamble'] Centre d'Analyse Stratégique, November 2009.

Link: <http://archives.strategie.gouv.fr/cas/system/files/a9a6f928d01.pdf>

'Each 2 MW wind turbine therefore guarantees its developer 360,000 euros in annual revenue for operating 2,200 hours due entirely to government whim and the wind energy lobby.'



Source: Association Vent de Colère [Raging Wind Association], 'Les sept erreurs de l'éolien industriel' ['The seven errors of industrial wind energy'].

Link: [www.ventdecolere.org/archives/sept-erreurs-eolien.pdf](http://www.ventdecolere.org/archives/sept-erreurs-eolien.pdf)

On the subject of feed-in tariffs, the Energy Regulating Committee (the independent administrative authority that ensures that the electricity and natural gas markets in France operate properly) came out against the feed-in tariff proposed by the Energy Minister. Intended to replace the identical 2006 tariff that had been cancelled by the Council of State, this tariff was pushed through all the same in a ministerial order of November 17, 2008.

Source: Commission de Régulation de l'Energie, 'Rapport d'activité – 1er janvier au 31 décembre 2008' ['Report on activity January 1–December 31, 2008'].

Link: <http://www.cre.fr/documents/publications/rapports-d-activite/rapport-d-activite-2008-2e-semestre/rapport-d-activite-2008-2e-semestre>

Moreover, according to the Energy Regulating Committee:

'With 25 GW installed power by 2020, the target set by the Grenelle Environmental Initiative, wind will increasingly replace nuclear and will need to rely more on combustion power plants, which are better adapted to load variations. That will result in environmental degradation and an increase in wind-related costs greater than the ratio between the 17 GW installed and the 25 GW target.'

That is worth examining more closely:

- By introducing a high compulsory feed-in tariff, the government provides an incentive to install wind turbines, which in theory will provide their owners with a comfortable income;
- This relies on the dogma that wind energy is 'green' and therefore good for the planet;
- However, wind turbines produce intermittently and must be backed up with conventional thermal power plants, which have a bad effect on the environment.
- Conclusion: the more wind turbines are installed, the more the customer pays for the electricity consumed and the worse the effects are on the environment.

A good illustration of this is Denmark, a world leader in wind energy (20% of its electricity production comes from the wind), but at the same time it is the country with the highest levels of CO<sub>2</sub> emissions per inhabitant.

Here are some details of the feed-in rates:

- Onshore wind: 8.2 euro cents/kWh for 10 years, then between 2.8 and 8.2 euro cents/kWh for five years, depending on the site;
- Offshore wind: 13 euro cents/kWh for 10 years, then between 3 and 13 euro cents/kWh for 10 years, depending on the site

The terms for feeding in electricity from onshore wind are set out in the order of June 17, 2014, while those for offshore wind are set out in the order of July 10, 2006.

– Feed-in tariffs for electricity produced by the wind energy sector:

Source: Ministère de l'Écologie, du Développement Durable et de l'Énergie [French Ministry of Ecology, Sustainable Development and Energy], 'Obligation d'achat des énergies renouvelables' ['Compulsory purchase of renewable energies'], February 4, 2010.

Link: <http://www.developpement-durable.gouv.fr/Les-tarifs-d-achat-de-l,12195.html>

– Ministerial order of June 17, 2014:

Source: Ministère de l'Écologie, du Développement Durable et de l'Énergie [French Ministry of Ecology, Sustainable Development and Energy], 'Obligation d'achat des énergies renouvelables' ['Compulsory purchase of renewable energies'] February 4, 2010.

Link: [http://www.developpement-durable.gouv.fr/IMG/pdf/joe\\_20140701\\_0150\\_0005\\_cle06178a.pdf](http://www.developpement-durable.gouv.fr/IMG/pdf/joe_20140701_0150_0005_cle06178a.pdf)

– Ministerial order of July 10, 2006:

Source: Ministère de l'Écologie, du Développement Durable et de l'Énergie [French Ministry of Ecology, Sustainable Development and Energy], 'Obligation d'achat des énergies renouvelables' ['Compulsory purchase of renewable energies'] February 4, 2010.

Link: <http://www.developpement-durable.gouv.fr/IMG/pdf/tarif-achat-eolien.pdf>

## XV. A scenario for comparison

Let us consider a country with no source of energy, with a population of one million inhabitants.

### *A. Facilities*

We estimate per capita electricity consumption based on figures for France: consumption in 2007 was 485 TWh for 64 million inhabitants, so the country's needs are 865 MW per hour.

Let us compare the investment needed to provide for that level of consumption using wind energy and nuclear energy.

#### 1. Nuclear

A 900 MW nuclear power plant costs around 3 billion euros and is operational the whole time.

#### 2. Wind

We take account of the period of time in which the wind turbine is actually producing electricity. In the case of offshore wind, it is 3,400 hours a year at full capacity.

A 5 MW wind turbine can therefore produce 17,000 MWh in one year.

The country needs 7.6 TWh. Thus,  $\frac{7.6 \times 10^{12}}{17 \times 10^9} \approx 447$  wind turbines must be installed.

The total installed power is therefore  $447 \times 5 = 2,235$  MW, at a cost of 4.92 billion euros, more than the cost of a nuclear power plant.

These costs do not include the facilities needed for building the natural gas-fired power plants used to supply energy while the wind turbines are not operating.

These arguments make no practical sense, because the 447 turbines will all be stationary at the same time: our country will produce three times too much electricity for one-third of the time and nothing at all the rest of the time!

## *B. Profitability*

### **1. Nuclear**

If the plant costs 3 billion euros and produces 900 MW, and if the electricity is sold at 2 euro cents per kWh, or 20 euros per MWh, the income per year for 900 MW is  $900 \times 20 \times 24 \times 365 = 157,68$  million euros. It would therefore take 19 years to recoup the cost of the plant (without taking the cost of loans, depreciation, etc. into account).

### **2. Wind**

We will start with the real example of the Baltic I wind farm (Germany). It cost 100 million euros and produces 54 MW for 3,400 hours each year, or a total energy produced of 183,600 MWh per year. If the electricity is sold at 5 euro cents per kWh, or 50 euros per MWh, the income per year is 9.18 million euros and it will take a little less than 11 years to cover the cost of the farm.

Note that the assumptions regarding the electricity feed-in price are not the same in the two cases.

## **XVI. Examples of abandoned wind energy projects**

We looked into the number of abandoned wind energy projects. There is no lack of articles, and the reasons given are mainly the neighborhood and profitability. Here are a few examples:

- In Canada, two projects were abandoned for profitability reasons: ‘Two of the 15 wind farm projects proudly announced by Hydro-Québec and Prime Minister Charest in May 2008 will never see the light of day, because their developers were concerned about their profitability.’

Source: H. Baril, ‘Deux projets éoliens abandonnés’ [‘Two wind power projects abandoned’], September 24, 2009.

Link: <http://lapresseaffaires.cyberpresse.ca/economie/energie-et-ressources/200909/24/01-904954-deux-projets-eoliens-abandonnes.php>

- In Quebec, one project was abandoned because it was subject to agreement by 130 landowners. A second was stopped after local people refused to allow wind turbines to be built less than five kilometers (3 miles) from the sea ([45]).

Source: Les affaires, ‘Québec : les projets éoliens n’aboutissent pas’ [‘Quebec: wind power projects not completed’], March 5, 2010.

Link: <http://www.visiondurable.com/actualites/energie/6859-quebec-les-projets-eoliens-naboutissent-pas>

- In the United States, ‘9,000 MW of wind projects were cancelled or rejected by the Air Force, because wind farms create ‘cones of silence’ that interfere with radar reception.’

Source: Paperblog, 'Cône de silence : éoliennes et radars' ['Cone of silence: wind turbines and radar receivers'], February 6, 2010.

Link: <http://www.paperblog.fr/2792620/cone-de-silence-eoliennes-et-radars/>

- In Concarneau, a project was abandoned because of local opposition.

Source: Ouest France, 'Un projet éolien en suspens a Concarneau' ['Wind energy project on hold in Concarneau'], February 26, 2010.

Link: <http://www.ouest-france.fr/un-projet-eolien-en-suspens-concarneau-540562>

- In Mont-Saint-Michel, activist groups prevented a project from being implemented because of the 'visual pollution' caused by the wind turbines.

Source: Actu-environnement, 'Les pro et les anti-éoliens de nouveau opposés' ['Pro and anti-wind farm groups at loggerheads again'], September 24, 2009.

Link: [http://www.actu-environnement.com/ae/news/divergence\\_eolien\\_8399.php4](http://www.actu-environnement.com/ae/news/divergence_eolien_8399.php4)

Source: Fédération Environnement Durable, 'Eoliennes le scandale' ['The wind turbine scandal'], September 2015.

Link: <http://environnementdurable.net/>

- In June 2008 local people blocked a project in Midi-Pyrénées.

Source: La Dépêche.fr, 'Cap'Découverte : le projet d'éoliennes abandonné' ['Cap Découverte wind turbine project abandoned'], June 2008.

Link: <http://www.ladepeche.fr/article/2008/06/02/457266-Cap-Decouverte-le-projet-d-eoliennes-abandonne.html>

- In November 2008 a court in Lyon overturned a ministerial order authorizing the construction of wind turbines in the Department of Ain. One of the municipalities had lodged a complaint against the developer on esthetic grounds and won the case.

Source: Enerzine, 'Un projet éolien annulé sur critère esthétique' ['A wind farm project cancelled on esthetic grounds'], November 2008.

Link: <http://www.enerzine.com/3/6399+un-projet-eolien-annule-sur-critere-esthetique+.html>

- In May 2008 the Bordeaux court of appeal overturned a permit to construct two wind turbines on the grounds of the accident risk to people and property around them.

Source: Journal de l'Environnement, 'Eolien: annulation d'un permis de construire en raison de risques d'accident' ['Wind power: construction permit cancelled because of accident risk'], June 2008.

Link: <http://www.journaldelenvironnement.net/fr/document/detail.asp?id=20268&idThema=6>

Source: Naturavox, 'Montferrand empêche la construction d'éoliennes' ['Montferrand prevents wind turbine construction'], July 2008.

Link: <http://www.naturavox.fr/energies/Montferrand-empeche-la-construction-d-eoliennes>

- The leading-edge project for the Médoc Le Verdon Éoliennes wind farm (PMVE) at Verdon-sur-Mer in southwestern France is under threat after the prefect refused it a construction permit (announcement dated July 22, 2015):

'The prefect of Gironde has refused to issue a construction permit for a 16-turbine wind farm in Nord Médoc near Naujac-sur-Mer. His grounds: the operation of a radar and military facilities located not far from the site could be affected by the wind turbines.'

- The wind energy specialists Weole Energy in Paris, which had announced the creation of 35 jobs in 2009, are being wound up (announcement dated December 18, 2013).
- The Vergnet Group, the only French wind turbine manufacturer, based in Ormes, south of Paris, is concerned about its future (announcement dated February 23, 2012).

‘The Vergnet Group has just declared itself to be in great difficulties by issuing a warning about its 2011 results, which are well below the target set. This statement led to a 17% fall in its share price.

‘The company, which has 240 employees, has shed 20 workers in recent months.’

Source: Trendeo

Link: <http://www.observatoire-investissement.fr/>

## XVII. Critical analysis

The overall impression is one of inconsistency. Despite considerable subsidies, companies in the sector have been unable to develop. That is connected to the fact that, whether the government likes it or not, the whole sector is still governed by the laws of competition. The argument ‘Use green electricity, it’s good for the planet’ ultimately attracts very little credence.

Objectively it can be seen that the mass creation of jobs expected in these industries has not happened. The net variation in jobs (the number of jobs created minus the number of jobs lost) is as follows:

- Solar:

	2009	2010	2011	2012	2013	2014	2015
Net jobs	2,337	1,569	114	-322	309	145	-33

- Wind:

	2009	2010	2011	2012	2013	2014	2015
Net jobs	179	179	48	6200	-37	159	-69

Source: Trendeo

Link: <http://www.observatoire-investissement.fr/>

## Chapter VII

### Farming

#### I. Presentation

Farming feeds the human races and is one of the oldest occupations in the world (together with that of mathematician). One might think, therefore, that the general public and politicians would be used to the existence of farming and that it would be considered beneficial. But that is certainly not the case, as will be seen below.

#### II. It is bad for the planet

The website of the Ministry of Ecology, Sustainable Development and Energy states as follows:

‘Farming

‘The farming sector is the third largest emitter of greenhouse gases, accounting for over 21% of French emissions in 2012. Emissions of methane (CH<sub>4</sub>) and nitrous oxide (N<sub>2</sub>O) caused by biological processes associated with the application of nitrogen fertilizers to agricultural soils (45% of the sector’s emissions) and from enteric fermentation and livestock effluent (43%) make up the bulk of the sector’s emissions. Farming emissions (including energy consumption) fell by 9.6% between 1990 and 2012. That was due essentially to reductions in nitrogen fertilization, the total area under cultivation, the number of cattle raised, and energy consumption.’

Source: Ministère de l'Écologie, du Développement Durable et de l'Énergie [French Ministry of Ecology, Sustainable Development, and Energy], ‘Part et évolution des secteurs’ [‘Share by sector and trends’], September 22, 2009 (updated March 17, 2015).

Link: <http://www.developpement-durable.gouv.fr/Part-et-evolution-des-secteurs.html>

It could not be said better: reductions in the area under cultivation, the number of cattle raised and energy consumption! Under these circumstances, can farming be expected to create jobs?

And yet we continue to resent farming for actually existing, as it is bad for the planet:

‘Leaders from around the world met in New York Tuesday, September 23, to give fresh impetus to the international negotiations on global warming taking place under the egis of the United Nations. Marion Guillou, an agronomist specializing in world food security, reviewed the lessons to be learned from this summit on farming—a sector that causes considerable pollution and urgently needs to reinvent itself.

‘Agroecology as an agricultural practice uses the ecological properties of nature better than conventional agriculture, which in contrast is very fond of chemical inputs.

‘JOL Press: FAO Director-General Graziano da Silva praised the launch at the UN Climate Summit of a new Global Alliance for Climate-Smart Agriculture. What is this alliance?

‘Marion Guillou: When this alliance was launched in New York last week, it already had over 100 signatories, notably France, represented by Mrs. Girardin.

‘The aim of this alliance is to pool resources and experiences in order to fight global warming effectively and work to adapt the farming sector to climate change. To do so, the alliance is now organizing itself into three working groups. The first, on science and technology, is to work on exchanges in agricultural realizations; the second will consider financing and insurance—new insurance products will need to be developed in the context of more frequent extreme conditions linked to climate change; and the third working group is political.

‘JOL Press: In what way can agroecology figure among the possibilities raised by climate-smart agriculture?

‘Marion Guillou: As an agricultural practice agroecology aims to use the ecological properties deriving from nature better than conventional farming. Agroecology combines economic performance objectives with environmental performance objectives.

‘For example, the fact of adjusting the input of nitrogen to the plants’ exact needs has both an environmental benefit, by limiting losses into the soil, and an economic benefit for farmers, while also helping to reduce emissions of nitrous oxide, which is an extremely powerful greenhouse gas.

‘JOL Press: What is the current situation of the efforts being made to transition to agroecology around the world and in France?

‘Marion Guillou: Agroecology is practiced by many farming groups around the world. It helps locally with the global fight against global warming.

‘The moves by Stéphane Le Fol [the French Agriculture Minister (Editor’s note)] to encourage French agriculture to make the transition to agroecology are a step in the right direction since these practices, in all their diversity, are at one and the same time more environmentally friendly, better for farmers, and healthier for society.

‘There are many places in the world where important things are being done in agroecology. Particularly in Brazil. The initial motivation was not associated with a political determination to fight climate change. The risk of soil erosion made farmers themselves work out how to hold on to soils through ground cover or how to conserve them better by restricting plowing. In that way Brazilian farmers developed highly complex agroecological methods that are now practiced over millions of hectares.

‘The same phenomenon of initiatives capable of responding to local constraints has been found in Morocco, China, Africa, etc.

‘Similarly, in France, pioneer farmers developed innovative agroecological practices either because the soil was getting poorer or because there was erosion—as in Normandy—or to limit pesticide use, and so on. Each group of farmers had their own reasons and developed systems suited to the geographical and human conditions, and these agroecological systems are extremely diverse (organic farming, conservation farming, precision farming, integrated pest control, etc.), but in every case they seek a positive environmental impact and economic efficiency.



‘JOL Press: With agroecology, environmental and economic performance can be combined. Why, then, is agroecology still struggling to find acceptance in France and throughout the world?’

‘Marion Guillou: Agroecological practices are different from the conventional practices put in place during the second half of the 20th century. In fact, farmers were asked, for example, to feed France after the war; at the time they responded with a whole range of technical and economic support measures, including the common agricultural policy (CAP), and they succeeded in doing so by mechanizing and intensifying the use of fertilizers, pesticides, etc.

‘These farming practices made it possible to feed France—and worldwide agricultural production in 2000 was 2.4 times what it had been in 1960—but these practices gradually had deleterious effects on the environment.

‘The requirements laid on farmers these days have become more complex. Now they not only have to feed the world, but also respect the sustainability of natural resources and reduce greenhouse gas emissions. Therefore farmers need to adapt their practices. As in any other occupation, when you have to change your practices, you are taking a risk.

‘JOL Press: How much waste CO<sub>2</sub> is farming responsible for worldwide and in France?’

‘Marion Guillou: Farming is responsible for around 30% of waste CO<sub>2</sub> worldwide, if you count deforestation—in other words, the fact that in some parts of the world forests are being destroyed to grow crops. It accounts for 20% of emissions in France.

‘JOL Press: How much waste CO<sub>2</sub> could be saved worldwide and in France if we replaced non-renewable products and energy with “bioproducts”?’

‘Marion Guillou: During photosynthesis plants absorb CO<sub>2</sub> to produce their carbon; their use therefore makes it possible to be neutral in terms of greenhouse gas emissions. Consequently, every time you replace a ton of oil with its energy equivalent in fuel of renewable origin (such as plants or algae), you are reducing greenhouse gas emissions.

‘The proportion of waste CO<sub>2</sub> saved will depend on the extent to which fossil carbon is replaced with renewable carbon. But it could be considerable.

‘Today, 11% of world energy comes from biomass, through the use of wood, for example. This percentage could increase with the development of second-generation biofuels, materials derived from renewable substances.

‘In France, replacement with bioproducts already means we save the equivalent of 80 million tons of CO<sub>2</sub> a year, comparable with the 100 million tons emitted by agriculture.’

Source: Muller Coralie, ‘Lutte contre le réchauffement climatique - L’agriculture, responsable de 30% des émissions de CO<sub>2</sub> dans le monde’ [‘Fighting global warming—Farming is responsible for 30% of CO<sub>2</sub> emissions worldwide’], JOL Press, September 30, 2014.

Link: <http://www.jolpress.com/agriculture-pollution-emissions-co2-agro-ecologie-rechauffement-climatique-article-828167.html>

### III. Employment trends

It is clear that the whole profession suffers from such measures. This is what INSEE (the French National Institute of Statistics and Economic Studies) says:

‘Agricultural holdings

‘In the period 1980–2007 the active farming population fell from 8% to 3.4% of the total active population. Even in rural areas farmers are now in a minority. The world of farming is in the process of changing radically. [...]

‘The contraction in the number of agricultural holdings continues. Since 2005 their number has fallen by 3% each year, the same rate as in 1988–2000. As there are fewer holdings, they are becoming larger. In 2007 the average holding had 3 hectares (7 acres) more land than in 2005 and 12 hectares (30 acres) more than in 2000. Commercial holdings now cover 25.2 million hectares (62.3 million acres) of farmland, barely less than in 2005 or 2000. Large-scale arable holdings are the most numerous. Then come holdings growing multiple crops or raising several types of livestock.

‘Incomes and agricultural production

‘In France as in the rest of the 27-member European Union, the value of agricultural production is falling in 2009 because of lower prices. Since input prices are falling less quickly, agricultural incomes continue to deteriorate.

‘Since the 2006 reforms the total amount of subsidies for agriculture has remained almost stable. Net agricultural profits are still falling in 2009 after a drop in 2008. The determining factor for this considerable reduction is the fall in the value of agricultural production, which is greater than the fall in expenses. As total agricultural employment is decreasing, the net agricultural profit per worker is falling a little less. In real terms, net agricultural profit per worker is still falling further, back to its level in the early 1990s. After deducting wages, the net income of a farming business is contracting sharply, having already fallen substantially in 2008 after two years of exceptional growth. As the number of non-wage-earning workers continues to diminish rapidly, the net income of a farming business per non-wage-earning worker is falling a little less.

‘After rising for two years, input prices are falling due to a reduction in volumes. With regard to expenditure on animal feed, quantities are diminishing and prices are clearly down, with repercussions on the fall in cereal prices. Fertilizer consumption is falling in volume since farmers have contained their purchases due to the very high rise in prices. In addition, energy bills have been reduced by the noticeable fall in the price of petroleum products.

‘Crop production volumes are up by 2.3%. While cereal crops are stable, fruit crops are much larger than in 2008. Oilseeds, protein crops and beetroot have made strong progress and occupy larger areas. Wine production is showing clear signs of recovery after falling for three consecutive years. Vegetable production prices are down by 9%. Cereal, oilseed and protein crop prices fell sharply in 2009 under the effect of large harvests worldwide and end-of-season stocks. Fruit prices fell appreciably as a result of weak demand.

‘Animal production is down in volume and value. In response to the fall in meat consumption, slaughtering and livestock numbers were reduced and poultry production contracted. Chicken

production was up because of dynamic demand on both the domestic and the export markets. Dairy farming, which has become less profitable, is also contracting. Price reductions were particularly large for milk, poultry and swine. Conversely, prices for eggs and sheep strengthened as a result of moderate supply.'

Source: INSEE, 'Exploitations agricoles' ['Agricultural holdings']

Link: [http://www.insee.fr/fr/themes/document.asp?ref\\_id=T11F172](http://www.insee.fr/fr/themes/document.asp?ref_id=T11F172)

Things are no better for the fishing industry, as Les Echos explains:

'The French fleet, which has lost half of its vessels in the last 15 years, now consists of 4,500 fishing vessels. They are 26 years old on average. The price of a trawler has doubled in 10 years. The price of a 12-meter (39-foot) vessel has gone up from 800,000 to 1.8 million euros.'

Source: Les Echos, 'L'Etat prêt à accompagner le renouvellement de la flotte de pêche' ['The government is ready for the renewal of the fishing fleet'], October 22, 2015.

Link: <http://www.lesechos.fr/pme-regions/actualite-pme/021424637212-letat-pre-a-accompagner-le-renouvellement-de-la-flotte-de-peche-1168247.php>

Ouest-France explains why:

'You cannot go and build a new boat just when you want. Permits are drip-fed, as Europe requires. To conserve fish stocks, Europe believes it is essential to limit the number of boats that fish.'

Source: Ouest-France, 'La pêche artisanale a besoin de bateaux neufs' ['Small-scale fishing in need of new boats'], March 1, 2011.

Link <http://www.ouest-france.fr/la-peche-artisanale-besoin-de-bateaux-neufs-119147>

The attacks on fishing, which are identical in their methods, make use of a different justification—it is a matter of preserving 'biodiversity.' In reality, the fish have long taken refuge in areas where the European Commission cannot count them.

## IV. Critical analysis

Every human activity, including farming, has its share of constraints of all kinds. It needs fertilizers, it needs water, and it needs the tractors to run. All of that has to be weighed against the benefits that the activity brings. In this case, corn does not grow in cans, and if we do not produce it ourselves we will have to buy it elsewhere, with all the drawbacks that entails—it will not be so good, it will cost more, and we will have lost the corresponding jobs.

Comparing the arguments given in the paragraphs above—it is bad for the planet, and consequences for employment—leaves one stunned, flabbergasted. Farming feeds the French people perfectly satisfactorily with products that overall are good quality and at perfectly reasonable prices (there are even some foreigners who come to France to eat). But a handful of government officials, faculty members and dogmatists, who have never produced anything except publications, come and tell farmers that they are a danger to the planet and that from now on they must practice agroecology.

It is like a dream, so we will say no more and let Victor Hugo respond instead:

*What! That rogue who, armed with a title in due form,  
Has as his only splendor his immense bastardy,  
That child of chance, reject of the scaffolds,  
Whose name was stolen, whose birth was false,  
That misfit shaped from cunning and arrogance,  
That intruder will enter the blood of Braganza...*  
Victor Hugo, *Les Châtiments* [Castigations]

## Chapter VIII

### Environmental occupations

#### I. Presentation

It might be thought a priori that all occupations designed to preserve the planet would be growing fast and creating a considerable number of jobs. But that is not the case, since these occupations often depend on subsidies. These are both ephemeral and variable, and so the occupations do not reach the threshold of profitability.

#### II. Firewood

This is apparently a very old means of heating, which goes back to the dawn of humankind. In France it was still in common use in rural areas at the end of the 20th century. It has fallen somewhat out of favor because of the obvious drawbacks, in that the wood has to be cut and transported and the stove fed regularly. It is much simpler to use gas or electric heating, which do not have these drawbacks.

Yet wood-fired heating is making a strong comeback to the sound of the widespread claim that ‘it is good for the planet!’

We will examine these arguments as reported in the *Annuaire* (yearbook) of the French fuelwood and solid biofuels industry, collective, tertiary and industrial sectors, for 2013–2014. The modern name for firewood burning is ‘thermal biomass use’, which obviously makes it more valuable.

This is what the President of ADEME (French Environment and Energy Management Agency) writes in this yearbook:

‘The energy biomass industry has developed in the context of the fuelwood programs organized by ADEME since 1994 and has accelerated since the Heating Fund [Fonds Chaleur] was set up in 2009. The 2012 targets of the national renewable energy action plan were reached with around 5,000 biomass facilities in operation or under construction today in the collective heating network, tertiary, and industrial sectors, for an annual consumption greater than 1.6 million tons of oil equivalent. As it replaces imported fossil fuels, this renewable energy provides a balance of trade saving of at least 300 million euros per year and reduces the country’s energy dependence.

‘The Heating Fund also responds to socioeconomic concerns. The support provided has a major leverage effect in that it generates three times as much investment and leads to permanent economic activity. The annual turnover associated just with the sale of heat from ADEME-supported projects amounts to 500 million euros, one-half of which is directly for the French supply utilities. These projects provide 5,000 additional jobs in facility operation and supply for 20 years, as well as 1,500 jobs for 5 years in the construction and installation of the combustion

plant. Ninety percent of these jobs are located in France. Even if the instrument were continued at its current budgetary level, the number of jobs created by 2020 would be around 15,000 for a fossil fuel importation economy worth 1 billion euros per year.

‘These good results are based on the involvement of the whole renewable heat industry, from project managers to operators, via community outreach workers. It now behooves us all to continue these efforts in order to meet the 2020 targets to which France is committed and to follow the new course that will emerge from the national debate on energy transition.

‘In any event, the many advantages of biomass in terms of energy, economics and the environment mean that it should continue to develop and play a major role in French energy policy. This development will be important not only as part of an attractive incentive package, but also in terms of improving the efficiency of production and distribution, which is partly up to the facilities themselves, and reducing environmental impact, especially by cutting dust and NO<sub>x</sub> emissions. Lastly, it is essential that the increase in demand be accompanied by a vigorous policy to develop domestic supply, involving greater use of forestry resources and timber waste and optimizing the traceability, selection and preparation systems for biomass fuels.

‘To meet the 2020 targets, which are as necessary as they are ambitious, the whole industry and all the actors in the value chain are mobilized, as illustrated by the wealth and diversity of this yearbook.’

Source: ADEME, ‘Annuaire de la filière française du bois énergie et biocombustibles solides, secteurs collectif, tertiaire et industriel’ [‘Yearbook of the French Fuelwood and Solid Biofuels Industry, Collective, Tertiary and Industrial Sectors’], 2013–2014, 243 pages.

Link: [http://www.enr.fr/userfiles/files/Annuaire/2013163727\\_annuairebiomasseBD08072013.pdf](http://www.enr.fr/userfiles/files/Annuaire/2013163727_annuairebiomasseBD08072013.pdf)

That is all absurd, of course. It is not a case of substituting wood for imported fossil fuels because most of the electricity produced in France comes from nuclear energy, a fact that the president of ADEME seems not to know.

As for the ‘Heating Fund,’ this is what the ADEME website has to say about it:

‘The Heating Fund in brief

‘One of the government’s renewable energy (RE) promises, the Heating Fund, managed by ADEME since 2009, plays its part in the development of renewable heat production. It is intended for multi-unit housing, local authorities, and corporations.

‘An essential means for attaining 23% RE by 2020 and reducing energy bills and CO<sub>2</sub> emissions.

‘Heat production in France accounts for one-half of energy consumption. It still relies heavily on fossil fuels, although this country has no lack of alternatives. The Heating Fund contributes to the targets of the European energy and climate package, which involves raising the RE share of national energy consumption to 23% by 2020. It should thus facilitate the additional production of 5.5 million tons of oil equivalent (toe) of renewable or recovered heat by 2020 (1 toe = 11,630 kWh).

‘Social objectives

‘To finance heat production projects based on renewable energy and energy recovery as well as heating networks linked to these facilities. This financial support makes renewable heat competitive with that produced from conventional energy sources;

To encourage employment and investment in the various sectors of activity;

To try out new fields (emerging issues and methods) to improve RE deployment with a view to expanding it to all areas.

‘A project catalyst

‘In 2009–2013 the Heating Fund was endowed with 1.12 billion euros to support around 3,000 implementations and a total production of 1.4 Mtoe. In addition, it has been recognized for its effectiveness in the energy transition debate. These factors were behind the extension of this instrument to support quality projects from concept to implementation.’

Source: ADEME, ‘Le fonds de chaleur en bref’ [‘The Heating Fund in brief’], October 2015.

Link: <http://www.ademe.fr/expertises/energies-renouvelables-reseaux-stockage/passer-a-laction/produire-chaleur/fonds-chaleur-bref>

Here we have a typical example of state support for a sector that makes no economic sense and is based solely on empty political correctness. Political ambitions (23% renewable energy) that are entirely irrelevant but attract huge amounts of financing are trotted out again. Of course, the day it is realized that the industry has no future, the subsidies will dry up and the businesses will disappear.

The jobs created by the ‘biomass’ sector are as follows (source: Trendeo):

year	2009	2010	2011	2012	2013	2014
Net jobs	349	554	968	296	166	166

*Table 1. Net jobs in the biomass industry, 2009–2015 [Source: Trendeo]*

‘Net jobs’ means the difference between jobs created and jobs lost in an industry. In practice, biomass created 166 jobs in France in 2014. If that is compared with the huge amounts of financing that the industry received, it is clear that something is wrong.

The biomass industry wants to continue biofuel development. As the Yearbook states:

‘Continuation of biofuel development

- Retain the support measures for the biofuel industries
- Retain the incorporation targets set at European level under the Renewables Directive (Directive 2009/28/EC).

‘With its many economic, social and environmental advantages, biomass is fully aligned with the ideas of a circular economy and sustainable development. In environmental terms, biomass helps fight climate change, reduce France’s dependence on fossil raw materials, cope with the future exhaustion of hydrocarbon reserves, and favor the emergence of alternative production methods.

‘This energy is essential if we are to meet the targets that France has set itself in the context of the European energy and climate package and the debate on the environment.’

Source: FBE, ‘Annuaire de la filière française du bois énergie et biocombustibles solides, secteurs collectif, tertiaire et industriel’ [‘Yearbook of the French Fuelwood and Solid Biofuels Industry, Collective, Tertiary and Industrial Sectors’], 2013–2014.

Link: [http://www.enr.fr/userfiles/files/Annuaire/2013163727\\_annuairebiomasseBD08072013.pdf](http://www.enr.fr/userfiles/files/Annuaire/2013163727_annuairebiomasseBD08072013.pdf)

It is hard to understand how using wood for heating helps fight climate change. But the reader must be used to all these absurdities by now. You only need to say ‘what we are doing is good for the planet’ and you are given money.

‘The development of fuel wood in the sector financed by the Heating Fund managed by ADEME could cut 1.3 billion euros from the energy bill in 2020’ (BIPE Consultants, 2012).

We really do not know how these consultants paid by ADEME arrived at these figures, but we can be sure that when the French Audit Office checks them the sums will be different.

### III. Water-related occupations

As with wood-fired heating, occupations that manage water are very old when it comes to bringing water to homes and removing wastewaters. But these occupations underwent considerable changes with the appearance of new generations of wastewater treatment plants. In some countries (this is not the case in France) they desalinate seawater.

Details for the Veolia Environnement Group are given below. The group’s profile changed when its transportation business was sold in 2011.

The table below shows Veolia’s workforce worldwide (in thousands)

year	2009	2010	2011	2012	2013	2014
Water	96	96	97	89	83	85
Cleaning	86	85	77	64	61	63
Energy	53	53	53	50	43	26

*Table 2. Veolia’s workforce worldwide, 2009–2014*

The table below summarizes Veolia’s workforce in France (in thousands):

year	2009	2010	2011	2012	2013
Water	30.5	29.2	26.9	26.8	26.7
Cleaning	23.7	23.3	23.6	23.5	22.4
Energy	15.4	15.5	13.7	13.8	12.9

*Table 3. Veolia’s workforce in France, 2009–2014*

A sharp fall in employee numbers can be seen. Each type of activity saw its workforce shrink between 2008 and 2013, with the largest loss in Water (-3,800), followed by Energy (-2,400), and Cleaning (-1,300).

Even so, Veolia does its best to keep in step with the environmental discourse on global warming. The following can be found on the Veolia website:

‘The climate challenge is for everybody, including us. That is why Veolia has long been involved in reducing greenhouse gas emissions, whether its own or those of its clients.



‘Veolia designs and implements solutions that enable its clients to respond to environmental problems by upholding a fresh economic and social dynamic that creates jobs and cares more for people’s well-being.’

In its sustainable development commitments, the Group devotes the first two to the circular economy and the climate:

- ‘Manage natural resources sustainably by favoring the circular economy: Achieve a turnover of 3.8 billion euros linked to the circular economy by 2020;
- Contribute to combating climate change: Achieve 50 million CO<sub>2</sub> equivalent tons avoided and 100 million CO<sub>2</sub> equivalent tons reduced over the period 2015–2020, and capture more than 60% of the methane in our waste disposal facilities.’

The following information is taken from the Veolia Environnement Annual Financial Report for 2014 (p. 65):

‘The Group’s activities are subject to extensive, evolving and increasingly stringent environmental regulations, in particular in the European Union, but also in North America and emerging countries.

‘The Group’s activities are subject to a wide range of international, European and French regulations.’

The group made an effort to reduce its CO<sub>2</sub> emissions (p. 82 of the report):

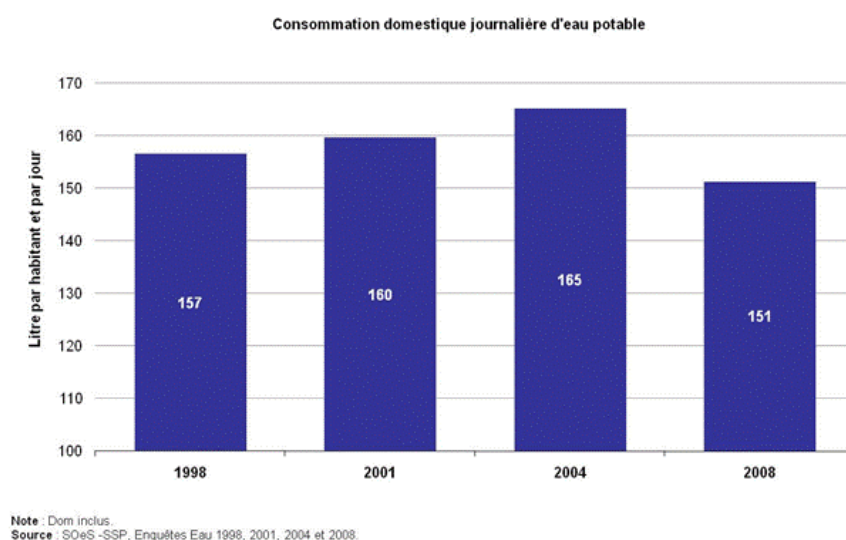
‘In 2014, direct emissions (scope 1) from activities managed by the Group stood at 26.2 million metric tons of CO<sub>2</sub> eq. (28.8 million metric tons of CO<sub>2</sub> eq. in 2013).

‘Indirect emissions (scope 2) stood at 7.7 million metric tons of CO<sub>2</sub> equivalent (7.4 million tons in 2013).’

## **IV. Critical analysis**

The question that arises is why a group that carries out work as fundamental as Veolia’s can find itself in financial difficulties. Like agriculture, water management is necessary for any civilization.

The answer is precisely the same as for agriculture—absurd regulations that the group has to comply with, which were decided for the sake of the general principle ‘it is good for the planet.’ The energy savings doctrine has also brought its share of constraints and incentives to reduce consumption: less and less water must be consumed, because it is good for the planet. Excessive water consumption is now seen as wasteful. Of course, the rivers flow on unperturbed, whether people wash themselves or not. Understand that if you can!



*Figure 4. Daily domestic consumption of drinking water*

Key:

Consommation domestique journalière d'eau potable	Daily domestic consumption of drinking water
Litre par habitant et par jour	Liters per person per day
Note : Dom inclus.	Note: Overseas departments included
Source : SOeS-SSP, Enquêtes Eau 1998, 2001, 2004 et 2008	Source: SOeS-SSP, Water surveys 1998, 2001, 2004, and 2008

Source: Ministère de l'Écologie, du Développement Durable et de l'Énergie [French Ministry of Ecology, Sustainable Development and Energy]

Link: <http://www.statistiques.developpement-durable.gouv.fr/lessentiel/ar/306/305/eau-potable-consommation.html>

## **Part Two**

### **The Brutalizing Whip**

## Chapter I

### Ever more money

#### I. Some obvious facts

Let us begin by stating some perfectly obvious facts.

##### *A. Taxes have never been so high*

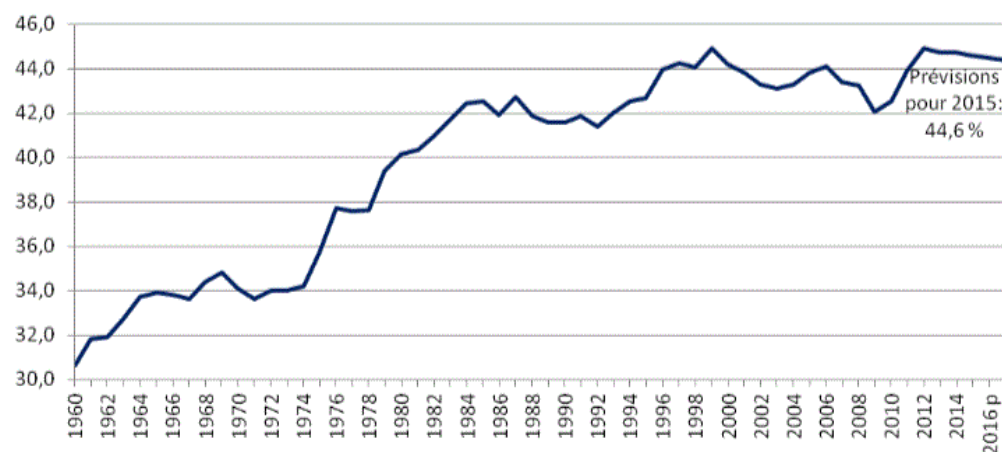
The tables below show the changes in total compulsory tax revenue (covering all taxes):

Year	2012	2013	2014	2015 projection
Compulsory deductions (billion euros)	913.9	945.6	956.3	971.4
Actual change (%)	+ 4.3%	+ 3.5%	+ 1.1%	+ 1.6%

Source: 2015 Finance Bill

*Table 1. Total compulsory tax revenue, 2012–2015*

and the changes in the percentage of GDP:



Source : Insee

*Figure 2. Changes in the rate of compulsory taxation (% of GDP)*

Key:

Prévisions pour 2015 : 44,6 %

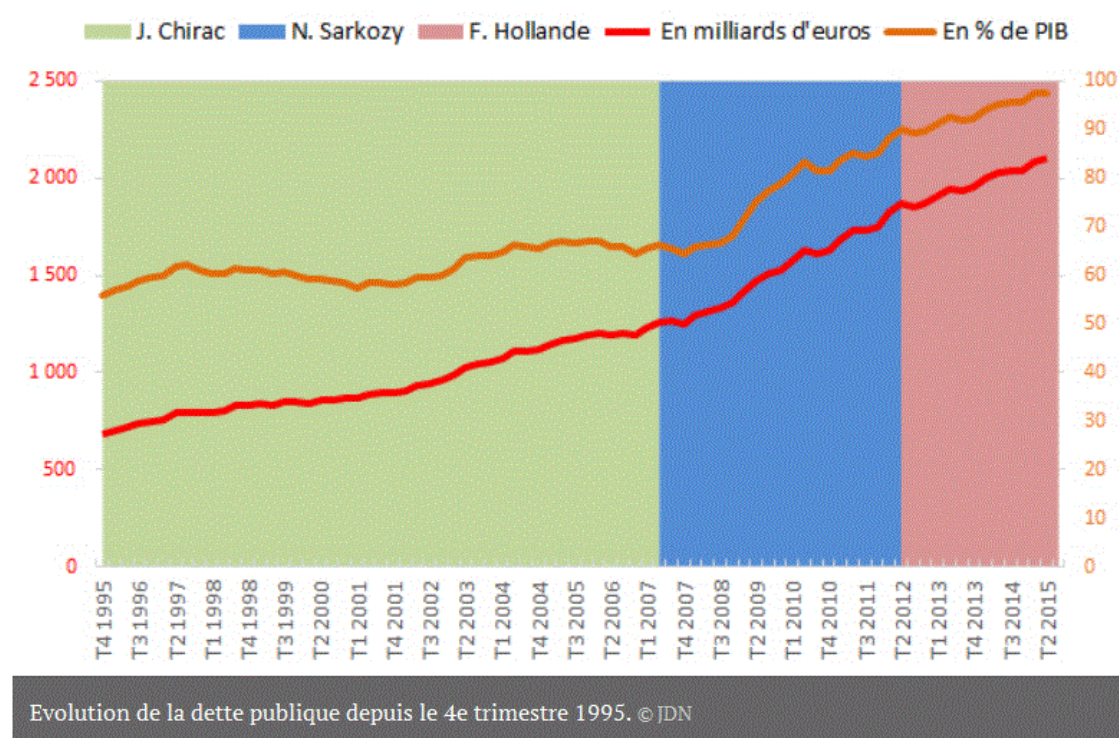
2015 projection: 44.6%

Source: La finance pour tous, 'Fiche Repères : Prélèvements obligatoires' ['Benchmarks: Compulsory taxation'], July 2015

Link: [http://www.lafinancepourtous.com/html/IMG/pdf/fiches\\_reperes/Fiche\\_repere\\_Prelvements\\_obligatoires.pdf](http://www.lafinancepourtous.com/html/IMG/pdf/fiches_reperes/Fiche_repere_Prelvements_obligatoires.pdf)

### *B. The Government is borrowing more and more*

Moreover, the Government is borrowing more and more money. The change in public debt is shown below:



*Figure 1. Change in public debt*

Key:

En milliards d'euros	In billions of euros
En % de PIB	In % of GDP
T4 (etc.)	Q4 (etc.)
Evolution de la dette publique depuis le 4e trimestre 1995	Change in public debt since the 4th quarter of 1995

Source: Journal Du Net, 'Dette publique de la France : toujours en hausse au 2e trimestre 2015' ['French public debt still rising in the 2nd quarter of 2015'], September 30, 2015.

Link: <http://www.journaldunet.com/economie/magazine/en-chiffres/dette-publique.shtml>

We can clearly see that the Government has more and more money at its disposal: the money taken from the people and businesses in the form of taxes and rates, and the money borrowed.

Defense spending has been cut since we are living in peace and the Cold War is over. In these circumstances the question that arises is: How is the Government using this money?

### *C. Dilapidated infrastructure*

The Government is certainly not putting the money into maintaining infrastructure—we have all seen the state of the highway network. In the field of energy, there is only one nuclear power plant under construction (the Flamanville EPR); all the other projects are for irrelevant ‘renewable energies’.

### *D. No job creation*

Throughout this White Paper we have looked at the unemployment figures and the extent of job losses.

#### **1. Relocations**

There is a phenomenon here that needs to be highlighted: jobs are disappearing; they are not being relocated.

In fact, an INSEE study states:

‘The ‘Chaînes d’activité mondiales’ [‘World value chains’] survey estimates that around 20,000 jobs were directly lost in France due to relocations of non-financial commercial businesses with 50 employees or more between 2009 and 2011, or around 6,600 losses per year over those three years. The 20,000 jobs lost represented 0.3% of wage-earners in all companies in the field in 2011, and 4% of wage-earners in those that relocated.’

Source: Fontagné, Lionel and D’Isanto, Aurélien, ‘Chaînes d’activité mondiales : Des délocalisations d’abord vers l’Union européenne’ [‘World value chains: Relocations first toward the European Union’], INSEE Première, No. 1451, June 2013.

Link: <http://www.insee.fr/fr/ffc/ipweb/ip1451/ip1451.pdf>

The figures for relocated jobs are therefore very low.

#### **2. Job destruction**

The Atlantico website states:

‘While the number of unemployed rose by 1.5 million since the beginning of 2008, a total of 594,000 jobs were destroyed in the commercial sector in the same period. Although job numbers in the “Public administration, education, human health and social action (excluding public employment)” category grew by 180,000, industry suffered a loss of around 430,000 jobs in total. Construction was the second worst affected sector with 120,600 jobs destroyed.’

The obvious conclusion is that these were jobs destroyed and not jobs relocated.

Source: Atlantico, ‘Nouveau record pour le chômage : âge, régions, secteurs d’activité, portrait robot des Français qui ont le plus souffert depuis 2008’ [‘Record unemployment: age, regions, sectors of activity, portrait of French people who have suffered the most since 2008’]

identikit picture of the French people who have suffered the most since 2008'], December 24, 2014 (published December 26, 2014).

Link: <http://www.atlantico.fr/decryptage/nouveau-record-chomage-age-regions-secteurs-activite-portrait-robot-francais-qui-ont-plus-souffert-depuis-2008-nicolas-goetzmann-1920945.html>

### *E. Return to the economy of an underdeveloped country*

The reason for this mass destruction of jobs is clear: France has gone back to having the economy of an underdeveloped country, the objective of which is to preserve, conserve, and maintain its available assets, rather than create new wealth.

Let us look at some obvious examples to ensure this is clearly understood.

#### **1. Ride sharing**

If you get three people to use the same car (which is called ride sharing or carpooling), a single car is enough for three people, and two of them will no longer need to buy a car.

Reasons invoked: it is good for the planet because in that way CO<sub>2</sub> emissions are limited and less fossil fuel is used.

Error of logic: the planet could not care less about the CO<sub>2</sub> emitted by human beings, and it is in our interest to exploit all the resources available. Saving them is a mistake.

Obvious consequences: car production is falling. Each person who shares a ride is dependent on the others' schedules, which is certainly not an advance for civilization.

#### **2. Recycling**

We are constantly being told that we should reuse the same objects, such as plastic sacks, as much as possible; we must ensure that devices last as long as possible; etc.

Error of logic: that ignores the fact that when the same objects are reused, they very soon become soiled (see shopping carts, for example, which are usually filthy). The main feature of disposable plates or disposable sacks is that they are hygienic. In any event, the planet could not care less about the plastic sacks that people throw away. If you leave a pile of garbage in front of your door, you will be penalizing yourself, but the planet will not even notice it.

Obvious consequences: since we recycle everything, we have no need of new products. Production slumps overall.

#### **3. Saving water**

We are told it is a crime to leave the water running.

Error of logic: water as a resource is not a basin where you have to turn off the faucet to stop it overflowing! Rivers flow whether human beings are there or not; for your information, the Rhône flows at an average rate of 1,700 cubic meters (60,000 cubic feet) per second (mean annual flow rate measured at Beaucaire in Gard Department,

Wikipedia). In other words, whether or not people turn off their faucets, millions of liters of fresh water flow into the oceans in France every second.

By saving water, we penalize ourselves twice over:

- It is bad for the water-treatment companies (Veolia, Suez-Environnement, etc.) because demand is lower;
- It is bad for all those activities that need water, particularly agriculture.

In France, we do not have a problem with the amount of water available as there is enough for all uses. It has to be set aside in the fall, winter and spring for use in the summer (which is generally achieved through reservoirs). But if farmers are told not to irrigate, they will no longer be able to produce.

In other countries, the global resource is insufficient. Therefore it has to be brought in from elsewhere, or produced, by desalinating seawater, for instance.

#### **4. Saving energy**

We are told we have to save energy, for example by replacing conventional light bulbs with low-energy bulbs, switching off lights that are not being used, etc.

Error of logic: as we have seen, the planet really could not care less about all the energy that human beings use or fail to use. By cutting back, we restrict ourselves to forms of energy that seem to be usable today: we economize on our candle stocks instead of inventing electricity.

Obvious consequences: no civilization can develop by saving energy. The doctrine is deeply unhealthy and would lead us to turn in on ourselves and give up all our curiosity.

All these features clearly illustrate our return to an underdeveloped country's economy. Civilization brings individual freedom and consumer goods, and alleviates constraints. It used to be thought that having our own car was progress, that being able to dispose of things we no longer wanted was part of our individual freedom, and that pushing a button to keep warm was very nice. But no—all that is bad for the planet. Suffer, good people!

#### **5. The wastefulness associated with the new forms of energy**

Everywhere we are told we have to reduce the nuclear part in the energy mix and on the other hand increase the so-called renewable energy part. Well, let us do the opposite and see what we would have saved if we had produced all this electricity with nuclear power plants. Let us replace wind turbines with nuclear plants and see what we save.

The data are as follows:

P = Wind electricity production (2014)	17.0 TWh (i.e. $17.0 \times 10^9$ kWh)
T = Feed-in tariff for wind	8.2 euro cents/kWh



electricity	
C = Cost of nuclear electricity production	4.9 euro cents/kWh

Table 4. Energy costs

Let  $E_{2014}$  be the amount saved in 2014 if we had used nuclear energy instead of wind:

$$\begin{aligned}
 E_{2014} &= P \times (T - C) \\
 &= 17.0 \times 10^9 \times (8.2 - 4.9) \\
 &= 56.1 \times 10^9 \text{ euro cents}
 \end{aligned}$$

$$E_{2014} = 561 \text{ million euros}$$

We performed the same calculation for the years 2006 through 2013. The results are as follows:

	Wind electricity production (TWh)	Amount saved (million euros)
2014	17.0	561.0
2013	15.9	524.7
2012	14.9	491.7
2011	12.3	405.9
2010	9.9	326.7
2009	7.8	257.4
2008	5.7	188.1
2007	4.1	135.3
2006	2.2	72.6
Grand total	89.8	2,963.4

Table 5. Amounts saved, wind

If we had not produced electricity from wind energy but only from nuclear energy, we would have saved around 3 billion euros since 2006.

We made no distinction between onshore and offshore wind production but used the feed-in tariff for onshore wind electricity (8.2 euro cents/kWh) in all our estimates. Note that the feed-in tariff for offshore wind electricity is 13 euro cents/kWh. Our estimates are therefore below the actual values.

Source: RTE, 'Panorama de l'électricité renouvelable' ['Panorama of renewable electricity'], 2014, page 10.

Link: [http://www.rte-france.com/sites/default/files/panorama\\_des\\_energies\\_renouvelables\\_2014.pdf](http://www.rte-france.com/sites/default/files/panorama_des_energies_renouvelables_2014.pdf)

Source: Observatoire de l'Eolien, 'Analyse du marché et des emplois éoliens en France' ['Analysis of the wind energy market and jobs in France'], October 2, 2014, page 41.

Link: [http://fee.asso.fr/wp-content/uploads/2014/10/Observatoire-de-lEolien-FEE\\_Restitution\\_vF.pdf](http://fee.asso.fr/wp-content/uploads/2014/10/Observatoire-de-lEolien-FEE_Restitution_vF.pdf)

Source: EUROBSERV'ER, 'Baromètre éolien - Wind power barometer', No. 12, February 2013, page 57.

Link: [http://www.energies-renouvelables.org/observ-er/stat\\_baro/observ/baro-jde12.pdf](http://www.energies-renouvelables.org/observ-er/stat_baro/observ/baro-jde12.pdf)

Source: Wikipédia, 'Électricité en France' ['Electricity in France']

Link: [https://fr.wikipedia.org/wiki/%C3%89lectricit%C3%A9\\_en\\_France](https://fr.wikipedia.org/wiki/%C3%89lectricit%C3%A9_en_France)

Source: Commissariat général au développement durable, 'Bilan énergétique de la France pour 2009' [France's energy balance sheet for 2009], June 2010, page 18.

Link: <http://www.developpement-durable.gouv.fr/IMG/pdf/Ref-4.pdf>

We applied the same reasoning to photovoltaic electricity. We took the average photovoltaic feed-in price for 2010, 2011, and 2012, i.e. 51.2 euro cents/kWh.

The results are as follows:

	Photovoltaic electricity production (TWh)	Amount saved (million euros)
2014	5.9	2,731.7
2013	4.7	2,176.1
2012	4.0	1,852.0
2011	2.1	972.3
2010	0.6	277.8
2009	0.2	92.6
Grand total	17.5	8,102.5

*Table 6. Amounts saved, photovoltaic*

If we had not produced electricity from photovoltaic energy but only from nuclear energy, we would have saved around 8 billion euros since 2006.

Source: Wikipédia, 'Électricité en France' [Electricity in France]

Link: [https://fr.wikipedia.org/wiki/%C3%89lectricit%C3%A9\\_en\\_France](https://fr.wikipedia.org/wiki/%C3%89lectricit%C3%A9_en_France)

## Chapter II

### The four clutches laid by the owl Treachery

We now have all we need to answer the question raised above: Where is the money going?

The answer is very simple: it is going to a group of bodies whose vocation it is to deal with what Baudelaire called ‘the brutalizing whip.’ Some will determine the circumstances in which we should be whipped, the others the size of the whip, the degree of punishment, and so on. In these we can see the four clutches laid by the owl Treachery.

#### I. The first clutch: the Ministry of Ecology

This ministry had a budget of around 20 billion euros in 2013. It is not clear what ‘ecology’ means here. At best it relates to evidence, at worst to catastrophes. In either case, it is expensive.

All reasonably law-abiding citizens know that they should not leave a heap of garbage in front of their door, because it is dirty, it annoys the neighbors and it is unhygienic. They do not need anyone to tell them that the heap in question is bad for the planet.

All the parts of this ministry that deal with the climate and energy, together with the bodies that come under them, make up the first clutch laid by the owl Treachery. It was they who gave the French Government’s ‘official’ blessing to the crusade against CO<sub>2</sub>. These bodies could have said ‘We are going to have the Brussels proposals assessed’ back when they were nothing more than proposals. Quite the opposite happened, since they made the proposals their own and in every case wanted France to go farther, in the false virtue called for by the crusade.

In the past there were attempts at resistance. In 2007–2008 the SCM carried out a critical analysis of the software used for forecasting CO<sub>2</sub> emissions, at the request of the General Directorate for Energy and Raw Materials (DGEMP), at that time part of the Ministry of Finance, which wanted to know how much all that was going to cost us. Later, the DGEMP became the General Directorate for Energy and Climate within the Ecology Ministry, and the cost issue disappeared in favor of ‘it is good for the planet.’

One particular egg in this first clutch is ADEME, the Agency for the Environment and Energy Management, which presents itself as ‘the state operator overseeing the ecological and energy transition.’ It is a public industrial and commercial establishment (EPIC) which answers jointly to the Ministry of Ecology, Sustainable Development and Energy, and the Ministry of National Education, Higher Education and Research.

ADEME is supposed to have scientific powers, but at no time has it tried to establish any form of debate. On the contrary, it revels in empty phrases, such as these from its website:

‘October 29, 2015

‘ADEME’s contribution to the drafting of energy visions 2030–2050

‘This prospective exercise has identified a possible itinerary for the energy transition in France, responding to the environmental challenges and identifying the adaptations needed in the French energy production system.’

Why is an energy transition needed? What are the environmental challenges? Why does the French energy production system need adapting? It is a mystery, but do not rely on ADEME to answer these questions. Instead, ADEME proposes paid service providers to do all that. ADEME is both judge and party in all these issues.

## II. The second clutch: journalists

Journalists ‘in short attire,’ as Victor Hugo said, have all, to a man, fallen into step with the crusade, mentioning it everywhere and never questioning its relevance. The worst, of course, are the so-called ‘science’ journalists (*horresco referens!*), but the whole profession is guilty of it. That includes television, radio, newspapers, magazines, and so on.

At no time have they invited any debate at all, or even mentioned that a debate still exists. They have opened up their broadcasts and columns to the most alarmist, global warmist and corrupt people that exist.

Engineering schools are normally the places where all these issues that affect young people are debated, but no debate has ever taken place. An example is *La Jaune et la Rouge*, a monthly magazine edited by alumni of the *École Polytechnique*, which often publishes analyses of scientific subjects, yet has never opened up its columns to a debate on climate change. That would be politically incorrect.

On the occasion of COP21, the following appeared on the website *lepoint.fr* (November 4, 2015):

**Gaël Derive—COP21: the Arctic, world climate  
sentinel**

BY GAËL DERIVE

In the Far North, where warming is more pronounced than elsewhere, the rapidly melting ice sheet is already having an impact on the Inuit way of life. And soon it will be ours.

That is extremely worrying, because the fact is inaccurate. There is no sign that the global climate is warming, and there are many places where the ice sheet is

expanding—we saw all that in the first volume of our White Paper. Here we have a journalist who is not doing his job properly. That would not be so serious if it were an isolated case. But here we have a flood, a media frenzy, in all the press, every day, and several times a day!

### III. The third clutch: scientists

The vast majority of French scientists (not all of them, but the vast majority) have lined up behind the banner of the fight against CO<sub>2</sub> and have supported this crusade. That applies to individuals and also scientific bodies. The French Atomic Energy Commission has seen fit to add ‘and Renewable Energies’ to its name. There has been no French scientific organization in the last 10 years that has clearly set out its reservations regarding the CO<sub>2</sub> crusade.

Here are two examples:

#### A. *The Academy of Sciences*

In 2010 the Research Minister at the time, Valérie Pécresse, asked the Academy of Sciences for a report on climate change. The conclusions of this report are clear:

- ‘Several independent indicators show an increase in global warming from 1975 to 2003;
- This increase is mainly due to the rise in the concentration of CO<sub>2</sub> in the atmosphere;
- The rise in CO<sub>2</sub> and, to a lesser degree, other greenhouse gases is indisputably due to human activity;
- It is a threat to the climate and, moreover, to the oceans because of the acidification process that it causes.’

Source: Académie des Sciences, ‘Le changement climatique’ [‘Climate change’], October 26, 2010, 19 pages.

Link: <http://www.academie-sciences.fr/pdf/rapport/rapport261010.pdf>

The problem here is how a report was able to present such categorical conclusions, giving an impression of consensus, when several Academy members disagreed with these conclusions. The honest thing would have been to say ‘We do not all agree on this and it is debatable.’

The idea of asking the Academy of Sciences for its opinion might seem natural, but it is not legitimate. The Academy of Sciences is made up of members who coopt one another. They are, or have been, of varying levels of ability, depending on their specializations. They are there as individuals and do not have resources for research or teams to help them. On an issue as complex as global warming, most of them strictly have no expertise or any means of acquiring it.

To deal with this subject, as we have done in volume I of this White Paper, requires a team working for several months. The data have to be gathered, analyzed one by one, and compared with extreme thoroughness, and a graph shown in a particular place has to be checked to ensure it correctly represents the relevant data, etc. The members of the Academy of Sciences are unable to do that.

### *B. Météo-France*

This French weather office has, or should have, the necessary scientific expertise.

But this is what their website states:

‘Continued warming in metropolitan France throughout the 21st century, whatever the scenario

‘According to the scenario with no climate policy, temperatures in the period 2071–2100 could be 4°C warmer than in the period 1976–2005

‘Little change in annual precipitation in the 21st century, but seasonal and regional contrasts

‘Continued reduction in the number of days with frost and continued increase in the number of hot days, whatever the scenario

‘Heat waves becoming more and more frequent and intense

‘Soil desiccation becoming increasingly marked over the 21st century in all seasons’

Source: Météo-France, ‘Climat’ [‘Climate’], accessed November 1, 2015.

Link: <http://www.meteofrance.fr/climat-passe-et-futur/climathd>

A search for the data and reasoning on which Météo-France bases these conclusions would be in vain.

### *C. General remarks*

Most French scientists have tenured positions in the French education system, the CNRS (the National Science Research Council), etc. Therefore they do not have to fear possibly losing their job. But a generalized intellectual mediocrity and a fear of putting their head above the parapet have led most of them (even after retirement!) to lend their support to the crusade and—worse still—to try to benefit from it in the form of budgets, credits, grants, etc.

We have seen countless absurd research topics that are entirely devoid of content, the sole aim of which is to ensure an ‘energy transition’ that nobody has asked for.

This point deserves special attention. Over the last 20 or 30 years, French research, which was of reasonable quality overall, has changed direction to roll out inane projects that everybody knows in advance can come to nothing.

A small fraction of scientists has kept up the resistance in the form of published books. Publishing remains free in France, even if the press no longer is.

## **IV. The fourth clutch: corporate environment departments**

Everybody can see that businesses are the main losers with the new 'climate', since they pay taxes and have to make a large number of their people redundant, because there is no longer any need for them, or the need has been reduced.

France in the post-war period had a large number of 'captains of industry' who gave rise to ambitious projects, such as high-speed trains and the nuclear program. All that has gradually disappeared since the 1980s, and businesses saw fit to set up 'environment departments', which were expected to respond to the concerns of the moment.

Instead of taking the company's side, however, these environment departments in fact made the most of the situation, which ensured them new importance. No environment department in any business of any kind has ever questioned the basis for the 'carbon footprint,' to take an example that we discussed previously. This carbon footprint simply gave the environment department an additional budget. Whenever the CEO of a company is asked 'What do you think of these new regulations? Are they relevant to you?' the answer is 'Of course not, see the environment department.' More specifically, this department is turning these regulations to its own advantage.

Of course, the corporate Communications Departments have fallen into step, saying we are greener than green, we do not emit CO<sub>2</sub>, we have a partnership agreement with Greenpeace, we are sponsoring a panda, etc.

## **V. What can be done with the owl Treachery?**

It is quite simple: it must be prevented from laying, because once the owl has laid its clutch it becomes difficult to get rid of its eggs.

### *A. Go back to the basic rules of research*

First of all we have to go back to the basic rules of scientific research. They clearly establish that data, observations and facts lie at the root of understanding the laws of nature; seeking a consensus is detrimental and deeply unhealthy. Let scientists argue among themselves as much as they like! There have been countless fights among scientists and there will be more to come. So much the better, as all that is preferable to an unhealthy consensus.

An essential factor here is the free circulation of data, which should never be the 'property' of any given body. No public decision should ever be made based on data that have not been made available to the general public.

### *B. Go back to the basic rules of law*

All these decisions that restrict our movements, reduce our consumption, etc. were made in defiance of the basic rules of law. We do not know what scientific arguments they were based on and we have no means of contesting them. We have to go back to the basic principles of law: the adversarial principle and the possibility of appeal.

### *C. Do not trust international organizations*

The first conclusion to draw from the climate nonsense is this: a body like the IPCC should not exist. It is the first time in human history that governments and supranational authorities have agreed to set up international bodies with scientific mandates: the World Health Organization, the World Meteorological Organization, and so on. In principle, these bodies exist to collect worldwide data and make them available to every country. They have no powers of their own but, to exist, they do all they can to put out the most alarmist rumors, which journalists then pick up in unison because of the body's 'international' status.

It is certainly useful to have international bodies to keep track of tornadoes or epidemics, but they have no other objective than to be data bases, and they have no specific powers. It is imperative to keep them strictly in check to prevent them from assuming an importance that they cannot have.

The idea that research bodies could exist at a global scale is deeply unhealthy and deeply absurd. Above all, that is what is demonstrated by the inanities of the IPCC, the WMO and even the WHO.

### *D. Leave the planet alone*

The planet has not asked us for anything and could not care less about our existence. The folly of these last 20 years—trying to understand and then control the planet's climate at any price—should urge us to be more modest, if we are capable of being modest!

### *E. Beware of any premature optimism*

The global warming dogma is in the process of collapsing, not in France (which will surely be the last Stalinist country on the planet), but everywhere else. In future, we must try to prevent the owl from laying, because we no longer know what to do with its eggs once they have been laid! As Bertolt Brecht said in *The Resistible Rise of Arturo Ui*: 'The belly is still fertile from which the foul beast sprang.'



## Appendix

### Delphine Batho<sup>1</sup> and the Engineer

After Jean de La Fontaine

By Bernard Beuzamy

A poor engineer, bedecked with awards,  
A victim of progress as well as of plans,  
Quitting Employment with leaden step,  
Set out for his empty power plant.

Able no longer to strive and to labor,  
He lays down his file and broods in despair.  
What jobs has he had since he came to this world?  
Is he the most wretched in the mechanical sphere?

Ubiquitous caution, economy extolled,  
The rises in charges and taxes up too,  
Energy to save and carbon to balance  
Make him a picture of utter dejection.

He calls Delphine Batho; she comes right away  
and asks him what he would like her to do.  
He says, 'Would you mind helping me  
To change this bulb; it won't take you long.'

Death is coming to cure it all;  
But let us not move from here.  
Rather suffer than die  
Is the human motto.

(December 2012)

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<sup>1</sup> France's Ecology Minister, 2012–2013.

## Contents

Summary .....	2
I. The tenth crusade.....	2
II. The consequences.....	3
III. A typical scenario.....	4
IV. If the mind protests, we stifle it .....	5
V. Mystical delusion .....	6
VI. The Grenelle Environment Round Table .....	6
VII. Rights no longer exist .....	7
VIII. The owl Treachery gaily lays its clutch .....	7
IX. Organization of this volume .....	8
Part One: Jobs are disappearing.....	8
Part Two: The Brutalizing Whip.....	9
 Part One.....	11
Jobs are disappearing .....	11
 Chapter I.....	12
A fish rots head first .....	12
I. General comments.....	12
A. Natural job wastage .....	12
B. Public sector jobs.....	13
C. The State is incapable of devising and implementing an industrial policy .....	14
II. A fish rots head first .....	14
A. The fundamental absurdity of the concept of sustainable development .....	14
B. The state of the planet.....	16
III. It's good for the planet.....	16
Chapter II .....	18
Biofuels .....	18
I. An excellent example .....	18
II. Summary for victims and the poor .....	18
III. Technical aspects .....	20
A. What is a 'biofuel'?.....	20
B. French Audit Office report (2012).....	20
C. Preliminary reports.....	22
D. The Futurol project (2008).....	23
E. French production of bioethanol.....	24

F.	The end of a dream .....	25
IV.	Conclusion: Nuremberg after Grenelle .....	28
	Chapter III .....	30
	Decisions that damage employment.....	30
I.	Agenda 21 .....	30
II.	The Grenelle Environment Round Table .....	31
III.	The climate and energy package .....	34
A.	Presentation.....	34
1.	History.....	34
2.	Objectives and content.....	34
3.	Content.....	35
IV.	Critical analysis .....	36
	Chapter IV.....	37
	The transport sector.....	37
I.	Road infrastructures .....	37
II.	Impact of these measures on construction and civil engineering companies.....	41
III.	Critical analysis .....	44
	Chapter V .....	46
	The war against the car .....	46
I.	A major social objective .....	46
II.	The figures.....	46
III.	The weapons used.....	48
A.	The bonus-malus system.....	48
B.	Traffic restrictions .....	48
1.	Poor-quality preliminary studies .....	49
2.	Lack of validation .....	51
IV.	Impact on employment .....	52
1.	Vehicle sales.....	53
2.	Employment trends at Peugeot .....	54
	Chapter VI.....	55
	Energy, employment and the planet .....	55
I.	The energy needs of a civilization .....	55
II.	Renewable energies.....	56
III.	Trends in energy requirements .....	57
IV.	A confused doctrine .....	59
A.	The doctrine of energy saving .....	59
B.	Use of ‘renewable energies’ .....	59

V.	Motivations .....	59
VI.	Inconsistencies .....	60
A.	Resources .....	60
B.	Public health.....	61
C.	It's bad for the planet.....	61
D.	In brief.....	62
VII.	The impact on employment .....	62
A.	Difficulties in the conventional industries .....	62
Chapter VII.....		68
Solar energy .....		68
I.	Presentation.....	68
II.	The facts about solar energy .....	69
III.	Solar technologies .....	70
A.	Electricity production .....	70
1.	Production of electricity for resale.....	71
2.	Local photovoltaic solar energy .....	78
B.	Examples of threatened or abandoned solar/photovoltaic projects .....	79
IV.	Thermal solar power .....	81
A.	Inconsistent regulations.....	81
B.	Costs .....	82
C.	The state of the market .....	82
D.	Support.....	83
E.	If we really have to invest in solar.....	83
Chapter VIII .....		84
Wind energy .....		84
I.	General presentation .....	84
II.	The demand for electricity varies over time .....	84
III.	General data for wind production .....	85
A.	The different kinds of wind power .....	85
B.	Wind turbine power.....	86
C.	What are the investment costs of a wind power project?.....	87
IV.	Comparison with other types of energy .....	88
V.	Implementation time for a wind-powered project .....	88
VI.	Availability of wind energy.....	88
VII.	Cost of wind production and other forms of energy production .....	89
VIII.	Comparative power .....	91
IX.	Acceptance by the general public .....	91

X.	Economic situation of the sector.....	92
A.	An example.....	92
B.	Profitability .....	92
XI.	Offshore wind energy .....	93
XII.	Development of wind power in France.....	95
XIII.	Prospects in France .....	96
XIV.	Feed-in tariff in France .....	96
XV.	A scenario for comparison.....	99
A.	Facilities .....	99
1.	Nuclear.....	99
2.	Wind.....	99
B.	Profitability .....	100
1.	Nuclear.....	100
2.	Wind.....	100
XVI.	Examples of abandoned wind energy projects .....	100
XVII.	Critical analysis .....	102
	Chapter VII.....	103
	Farming .....	103
I.	Presentation.....	103
II.	It is bad for the planet .....	103
III.	Employment trends.....	106
IV.	Critical analysis .....	107
	Chapter VIII .....	109
	Environmental occupations.....	109
I.	Presentation.....	109
II.	Firewood .....	109
III.	Water-related occupations .....	112
IV.	Critical analysis .....	113
	Part Two .....	115
	The Brutalizing Whip .....	115
	Chapter I.....	116
	Ever more money .....	116
I.	Some obvious facts.....	116
A.	Taxes have never been so high .....	116
B.	The Government is borrowing more and more .....	117

C.	Dilapidated infrastructure.....	118
D.	No job creation.....	118
1.	Relocations .....	118
2.	Job destruction .....	118
E.	Return to the economy of an underdeveloped country .....	119
1.	Ride sharing.....	119
2.	Recycling.....	119
3.	Saving water .....	119
4.	Saving energy .....	120
5.	The wastefulness associated with the new forms of energy.....	120
	Chapter II.....	123
	The four clutches laid by the owl Treachery.....	123
I.	The first clutch: the Ministry of Ecology .....	123
II.	The second clutch: journalists.....	124
III.	The third clutch: scientists .....	125
A.	The Academy of Sciences .....	125
B.	Météo-France .....	126
C.	General remarks .....	126
IV.	The fourth clutch: corporate environment departments.....	127
V.	What can be done with the owl Treachery? .....	127
A.	Go back to the basic rules of research.....	127
B.	Go back to the basic rules of law .....	128
C.	Do not trust international organizations .....	128
D.	Leave the planet alone.....	128
E.	Beware of any premature optimism .....	128
	Appendix.....	129
	Delphine Batho and the Engineer .....	129