

The biomasquerade continues....

Burning biomass, and especially whole trees, on an industrial scale to produce electricity is highly controversial in France, thanks in large part to civic opposition and legal challenges against the biomass plant near Gardanne. It seemed clear that, even if they did not intervene in order to close this plant, the French authorities had understood that this model should not be reproduced. However, in recent months, EDF and some local elected officials have been talking about the conversion of two other coal-fired power plants, in Cordemais, near Nantes, and in Le Havre. Hence the urgent need to remain vigilant and take action to stop such a disastrous development.

The phenomenon of wood energy on an industrial scale is not new. Before the massive expansion of coal mining in the 19th century, forests in France and all over Europe provided the material to run glass factories and forges. In addition, wood has always been used for heating.

What is new over the past decade is the massive and very rapid development of a new form of wood energy, that of electricity production in mega thermal power plants. The majority of these plants are units that had been coal-fired for decades and have been converted to burn biomass.

In France, it was in October 2011 that Nicolas Sarkozy's government granted authorisations to two large biomass power plants, as part of the 4th call for tenders launched by the Commission for Energy Regulation. This involved part (Group 4) of the coal-fired power plant in Meyreuil, near Gardanne (25 km from Marseille), with 150 MW, and a new plant in Brignoles in the Var with 21.5 MW. All the projects selected in the first three calls for tenders, as well as the 13 other projects in the 4th call, are much smaller wood-fired heating plants.

Elsewhere in Europe, the UK's largest coal-fired power plant in Drax (3870 MW) began combining coal and biomass combustion in 2010. In 2012 it announced the conversion of half of the plant that currently burns 7.5 million tonnes of pellets imported from the United States and Canada. This volume of pellets is produced from 13.2 million tonnes of green wood, which is the equivalent of 120% of the total annual wood production in the United Kingdom. Biomass power plants of more than 50 MW exist in many countries, including Belgium, Bulgaria, the Czech Republic, Denmark, Germany, Ireland, the Netherlands, Poland, Sweden...

Europe is by far the largest consumer of wood for energy purposes, in the form of chips or pellets. The main suppliers are companies such as Enviva in the United States. It is significant that there is no large-scale wood-energy sector in the United States. The reason is simple - there is no public financial support for this kind of industry.

The promoters of these biomass power plants present them as highly ecological projects, reinforcing the effort in favour of renewable energy and the climate, with a carbon neutral balance sheet. This is a myth that does not correspond to reality. A large number of scientists from all over the world have issued warnings to European governments and the European Union. They insist that burning biomass to produce electricity has even more negative consequences for the climate and also for public health than those caused by coal-fired power plants. They call on European decision-makers to stop all public funding for this form of energy. These plants are only profitable thanks to subsidies. Drax receives £2 million a day, Uniper in Gardanne €70 million a year.

After a long period of negotiations, the European Union defined on 14 June 2018 its new Renewable Energy Directive for the period 2020-2030. Its aim is to ensure that renewable energy makes up 32% of total energy production. "Bioenergy" currently represents about 65% of all renewable energy produced in Europe. The term bioenergy covers the use of agricultural, forestry and waste biomass for the production of biofuels, heating and electricity. 70% of this bioenergy comes from wood harvested in our forests or from the residues of forest industries. The European Commission itself has calculated that all trees harvested in Europe, without exception, would be necessary if the European Union is to achieve this 32% target and if the biomass share remains as it is today¹.

In their decision of 14 June, the European Parliament and Council rejected the proposal to exclude stumps and roundwood (tree trunks) from the biomass authorised for publicly subsidised wood energy purposes. Plants with a capacity of over 100 MW will have to achieve an energy efficiency of at least 36%, which is very low and does not include cogeneration which makes it possible to use heat and thus achieve an efficiency of about 80%. Drax has reached this 36 % threshold and now plans to convert other units in the coal-fired portion of the plant. The European Union's decision is a green light for the conversion of other coal-fired power plants across Europe.

At the COP 23 Climate Summit in Bonn in November 2017, nineteen countries representing half the world's population, including France, announced that they plan to increase the use of wood and more broadly biomass, presented as a "sustainable" source, to meet their energy needs².

The negative consequences of industrial wood energy

1) Impact on forests

The expansion of this new wood energy market is rapid and likely to continue. Take the case of the power plant near Gardanne, which will require 850,000 tonnes of biomass per year, supposedly from a 400 km radius around the plant. In the region this has provoked strong tensions on the timber market. The media openly evoke a "timber war" between the agents of Uniper and of Fibre Excellence (the pulp mill in Tarascon that requires 1.2 million tonnes per year) who travel the region in search of long-term supply contracts.

Even before the biomass conversion project arrived in Gardanne, Fibre Excellence had difficulty finding enough wood locally, going as far as the Landes and Burgundy. In 2014 it imported a whole boat full of wood chips from Venezuela. In January 2016, Uniper imported a boat of eucalyptus wood chips from huge plantations in Brazil. Today, most of the wood comes from Canada. There are also biomass power plants in Brignoles and Pierrelatte, not to mention the hundreds of smaller heating units set up in villages and towns, often by municipal councils, and also countless domestic pellet stoves. A report on the wood resources available in France commissioned by ADEME in 2016 clearly indicates that by 2030 there will not be the necessary material for all the uses already identified³.

¹ A new EU Forest Strategy : for forests and the forest-based sector, COM (2013) 659 final.

² Reuters, 17 November 2017

³ "Disponibilités forestières pour l'énergie et les matériaux à l'horizon 2035", ADEME, 2016.

The current policy of public support for bioenergy clearly favours the lowest possible "low-cost" use of the forest, that is the use of wood with an energy efficiency of 30% - instead of favouring higher quality use of timber in processing sectors, such as carpentry, cabinet-making or the construction of wooden houses. These do not release carbon and create up to forty times more jobs per volume of wood. Given the low value of wood for power plants, it is also clear that the companies that supply it will not do a careful job, respectful of the ecosystem, in the forests they exploit. In mountain regions, they will choose the most accessible forests.

The consequences in the south-eastern United States of the conversion of the Drax power plant are catastrophic. Scot Quaranda of the NGO Dogwood Alliance: "We are seeing the massive expansion of a new industry, the production of wood pellets to meet the needs of power plants in Europe. Our forests are being cut down and transformed into pellets that are transported to Europe where they are burned to produce electricity. All this in the name of climate protection, but in fact with a negative impact on our climate, our forests and our communities. Over the past five years, about twenty factories have started producing pellets and about thirty others are in the pipeline. Because of the paper industry and now biomass, a large part of our natural hardwood forests have been transformed into softwood plantations that look like giant corn fields. An old-growth forest is destroyed and trees are planted in lines, using chemical fertilizers and herbicides. About 60% of our wetland forests have been cleared and then the areas are drained and planted with softwoods."⁴

This plundering of the resource is so serious that 61 American scientists wrote to the European Commission in 2013⁵ to express their concern about this situation. They called on the European Union to "rethink its policy". The destruction of Canada's boreal forest is equally catastrophic.

Another consequence of the rapid increase in demand is the emergence of "wood-culture" (as in agriculture), i. e. planting fast-growing and short-rotation forests that are logged every 10 years and replanted. This system requires vast quantities of chemical inputs and water. Many of these plantations will be made up of genetically modified trees. For several years, experiments have been carried out on GMO eucalyptus and poplar varieties. The French National Agronomic Research Institute (INRA) has carried out a research project entitled "Very short rotation coppice of genetically modified poplars for wood properties - Assessment of wood for bioenergy production"⁶. According to the British association Biofuelwatch⁷, this development will lead to a massive new wave of land-grabbing in the countries of the South.

Let us not forget that other industrial sectors intend to draw their resources from forests. The new generation of agrofuels is mainly targeting trees. In Finland there is a pyrolysis oil production unit based on a process by which biomass is converted into bio-oil. In Saudron in France, the Atomic Energy Commission has created the "Syndiese" unit to produce synthetic diesel; Virgin Australia is looking to produce a biofuel for its aircraft, from trees. Then there are the "bioplastics", clothes made with trees... As if the world's forests were inexhaustible and eternal!

⁴ Archipel n° 237, May 2015

⁵ Letter of 30 August 2013 to the European Commissioner responsible for energy, Günther Oettinger.

⁶ <<http://presse.inra.fr/Ressources/Communiqués-de-presse/Peupliers-genetiquement-modifies-l-INRA-souhaite-l-aboutissement-d-une-procedure-sur-des-bases-claires>>.

⁷ "A new look at land-grabs in the global South linked to EU biomass policies", Almuth Ernsting, May 2014, www.biofuelwatch.co.uk See also "Eucalyptus plantations for energy", Biofuelwatch, October 2013

2) Impact on climate

More and more scientific studies and analyses indicate that the combustion of biomass in thermal power plants has even more negative consequences for the climate than that of coal. The calculations are complex, but the logic is simple. As the Brussels-based NGO Fern points out, "harvesting biomass reduces the amount of carbon held in a forest, known as the forest carbon stock. (...) There is a significant time lag between the moment of harvest and the assumed regrowth. The general rule is that if you cut a forest down, it takes the same amount of time it took to grow in the first place for it to return to its previous level of carbon storage. This could easily be between 50 and 120 years. (...) If forests are continually harvested more intensively due to bioenergy, they will never be able to recover the loss in carbon stock or the emissions released during combustion. (...) Forests can help mitigate climate change most effectively by being allowed to live and grow."⁸

According to the European Academies Science Advisory Council (EASAC)⁹, "the Paris COP21 targets may not be reachable without sustaining or increasing carbon storage in existing forests. There is a real danger that present policy over-emphasises the use of forests in energy production instead of increasing forest stocks for carbon storage."

Several recent studies (including Duncan Brack's report published in February 2017 by the British NGO, the Royal Institute of International Affairs Chatham House¹⁰) clearly indicate that burning biomass in plants such as Gardanne or Drax causes more greenhouse gas emissions than burning coal.

In September 2017, 190 scientists from around the world sent a letter to EU officials: "We, the undersigned, would like to express our grave concern and dismay over the scientific basis of recent policy developments regarding EU climate legislation on forests. (...) The promotion of an increase in active forest management encourages increased harvest levels in order to substitute fossil-derived fuels and products with wood and bioenergy without accounting for their full climate impacts. This approach risks having adverse effects on climate, biodiversity and ecosystems....".

On 9 January 2018, 659 scientists, once again from all over the world, pleaded with the European authorities to change their approach. On the same day, about 30 NGOs launched a similar appeal.

3. The impact on public health

According to Biofuelwatch, biomass mega power plants represent a very serious threat to public health because of their emissions of fine particles, dioxins, wood dust...¹¹ Burning biomass is generally more polluting than burning coal, except for sulphur dioxide. Biomass emits more fine and especially ultrafine particles. Dioxins - the most toxic chemical particles - are emitted in quantities 7 times higher than by burning coal. It should be noted that the energy power of biomass

⁸ "Burning trees for energy is no solution to climate change", Fern Briefing Note, October 2016, www.fern.org

⁹ "Multi-functionality and sustainability in the European Union's forests", EASAC, April 2017

¹⁰ "The impacts of the demand for woody biomass for power and heat on climate and forests".

¹¹ "Burning wood in power stations : Public health impacts", Biofuelwatch, September 2014, see also "Burning biomass : the impact on European health", Fern, September 2017

is about half as much as that of coal: it is therefore necessary to burn about 2 tonnes of biomass to obtain the energy equivalent of one tonne of coal.

Wood dust is a known carcinogen, according to the WHO International Agency for Research on Cancer, and exposure to wood dust is also associated with a range of other health risks. Wood dust is released into the environment when wood is shredded (the shredding unit in Gardanne is 500 metres from the power plant in a densely populated area) and when chips or pellets are stored in the open air or transported in insufficiently covered trucks.

In addition there are the consequences of the enormous increase in truck traffic. It is estimated that in Gardanne this will represent one truck every two minutes, once the plant is operating at full capacity¹². Another problem is the self-ignition of wood chips and pellets, causing fires and explosions. This is a major safety risk wherever large quantities of wood chips or pellets are handled. About a hundred fires or explosions have been reported worldwide.

In Gardanne, many residents have been complaining for several years about the high noise pollution caused by the biomass plant day and night. In 2017, following these complaints, the Aix-en-Provence sub-prefecture referred the matter to the Regional Directorate of Environment, Planning and Housing, which in turn commissioned Veritas, a certification and evaluation company, to carry out unannounced inspections of day and night noise emissions. In its report published in February 2018, Veritas validated the complaints of local residents, confirming that noise levels during the night had often exceeded legal limits. The Prefect took note of this and sent a formal notice to Uniper, the plant operator, on 22 June 2018, giving it three months to comply with the law.

The issue of the health impact of biomass power plants is taken seriously in the United States, where an expert hearing was held on this subject in the US Congress in September 2012¹³.

What happens next?

These problems of noise and pollution are not Uniper's only concern. On 8 June 2017, the Marseille Administrative Court annulled the operating licence for the biomass power plant. "The inadequacy of the impact study has had the effect of undermining the provision of full information to the population," it concluded. Uniper appealed against this judgment, as did Nicolas Hulot, Minister of Ecology. On 9 June the prefecture granted Uniper a provisional operating licence for a period of nine months. This deadline has long passed, but Uniper continues as if nothing had happened. The date has still not been set for the hearing of the appeal in court.

On 8 February 2016, the then Minister of the Environment, Ségolène Royal, announced the launch of the 5th call for tenders for the wood-energy sector. It was specified that projects must be less than 25 MW and meet a minimum energy efficiency threshold of 75%. This gave the impression that the Ministry wanted to avoid past mistakes with Gardanne.

However, in recent months, we have had to ask ourselves whether the French government is not on the verge of reoffending. In June 2018 a series of articles appeared in the regional press of

¹² Radio Zinzine broadcast in July 2018 "Bruit et fureur à Meyreuil" with interviews with four local residents experiencing health problems as a result of the power plant. www.radiozinzine.org

¹³ "Medical doctors brief Congress on biomass energy health hazards", Energy Justice Network, 2 October 2012

Normandy and Pays de la Loire on the future of the two coal-fired power plants still managed by EDF, in Cordemais (near Nantes) and Le Havre. It should be recalled that at the 2017 climate summit, Emmanuel Macron announced that the use of coal in power plants in France would be stopped by 2022.

"A race against time is underway to save the Cordemais power plant and its 462 jobs. On paper, the plant is condemned. (...) But hope is reborn. The project to convert the site, relying on the production of more virtuous energy using biomass, is progressing. On 24 May a victory was achieved. After a week of testing, the plant produced energy in one unit using 80% biomass and 20% coal, says Gwénaél Plagne of the CGT. The 87% mark has even been reached."¹⁴

The Cordemais power plant has a capacity of 1200 MW, with two 600 MW units. EDF has been running a conversion project called "EcoCombust" since 2016. Several elected officials are in favour of it, including the Regional Council (LR), the member of parliament for the constituency (LREM) and the local Green party senator!

"Even if a conversion project applied only to one of the two boilers, the biomass requirement would be exactly twice that of Provence 4 (the power plant near Gardanne), representing 1.7 million tonnes of wood per year. (...) A project which would require imports on a permanent basis would carry the same risk of rejection as that of the biorefinery of La Mède with palm oil. So the solution is simple. 1.7 million tonnes of wood, or even double that, can be found in metropolitan France. This would require a logistical structure covering a large part of the country."¹⁵

In response to a question in the National Assembly from the member of parliament, Anne-France Brunet (LREM, Loire Atlantique) who strongly supports this project, the minister Nicolas Hulot gave a clear reply: "the total conversion of coal-fired power plants by what you call the use of biomass, put more simply wood, for electricity poses environmental difficulties and I invite you to look carefully at the experiences in metropolitan France and abroad which show that all this gives is a low energy efficiency to produce electricity and often a problem of massive wood use that can contribute to deforestation. The future of biomass is in smaller facilities that produce electricity and heat from biomass and waste." This position reflects the approach adopted in the 5th call for tenders.

With regard to the Le Havre power plant, according to Pascal Ambos, director of the power plant and EDF spokesman, "when you look closely, the problem is not the power plant but the coal. So the challenge is to replace it with another material. (...) For the past two years, we have been engaged in a response to the need for energy transition to find less carbon-intensive solutions. The Le Havre and Cordemais power plants date from the same year, have the same technology and the same available power. What is done in one can be implemented in the other. Last month, different co-combustion experiments were carried out at both sites."¹⁶

Nicolas Hulot is no longer a minister, replaced by François de Rugy, a defector from Europe Ecologie Les Verts. Will he follow Nicolas Hulot's line or rather that of an ex-ecologist colleague?

¹⁴ Presse Océan, 15 June 2018 "Le projet qui peut sauver la centrale de Cordemais"

¹⁵ "Vers une transition à la biomasse de la centrale électrique de Cordemais", Frédéric Douard, Bioénergie International, 11 July 2018.

¹⁶ Paris-Normandie.fr 7 June 2018

"The cursor is moving in the right direction," says Ronan Dantec, Senator from Loire-Atlantique. The end of the Cordemais power plant is no longer inevitable. The experiments conducted are positive and show that there is no longer any climate reason to close the site."¹⁷

We can fear the worst. In a letter made public on 21 June, François de Rugy, then President of the National Assembly, whose constituency is located near Cordemais, questioned Minister Nicolas Hulot. De Rugy "defends the transition project currently being tested using biomass (Ecocombust)..."¹⁸.

For once, the United Kingdom, until then the most fervent promoter of industrial wood energy, is leading the way. In a press release issued on 7 June 2018, Biofuelwatch welcomed the British government's decision to change the conditions for granting public subsidies to biomass power plants. From now on, these must have an energy efficiency of 70%, instead of 35%, which would exclude any future power plant without cogeneration.

On 3 September, the UK government announced a very significant additional restriction. It has decided to refuse any future subsidies to biomass power plants that exceed a new greenhouse gas emission threshold (29kg per MW-hour), a threshold that represents an 85% reduction from the previous threshold (200.4 kg per MW-hour). According to Biofuelwatch, this decision should make it impossible to import pellets, as the emissions caused by the manufacture and transport of pellets would exceed this threshold. Unfortunately, this decision will have no impact on the public support contracts already awarded, such as the one signed with Drax.

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Update : In July 2019 François de Rugy was forced to resign as Minister and has been replaced by Elisabeth Borne. In the same month EPH, a company belonging to the Czech industrialist Daniel Kretinsky, bought the Gardanne power plant from Uniper.

¹⁷ Presse Océan, 15 June 2018 "Le projet qui peut sauver la centrale de Cordemais"

¹⁸ Presse Océan, 22 June 2018