

AGROFORESTRY WOODCHIP FOR COLLECTIVE HEATING FACILITIES

Maintain the landscape by using woodchip for fuel



THE WHAT AND WHY

Pruning the tree hedges is not just a cost, it produces fuel resources as well

Tree hedges are very important elements of the French landscape, especially to maintain the “bocage” (pastureland divided into small hedged fields interspersed with groves of trees). However, since the 70s, trees and hedges are seen by farmers and town representatives as a liability and a cost rather than a resource. Hence, hedges are not well maintained, and sometimes even pulled out. To keep these hedges healthy and managed, so that they can keep providing their ecological and agronomical services (e.g. biodiversity havens, protection against weather,

erosion prevention), it is crucial to turn them into economic resources.

A serious lead for the valorisation of hedge products is wood-fuel for collective heating systems. Several actions are needed to truly develop a wood-fuel value chain: promote hedge restoration and replanting, train farmers on good hedge management practices, help small-scale woodchip-processing companies to find suppliers and promote installation of collective heating systems for city infrastructures, enterprises or farms.



watch video

A collective heating facility using woodchips in Sin-le-Noble, France, supplying heating to apartment buildings, a school, a high-school, a hospital and even a shopping mall.

Source: La voix du Nord newspaper, photo by Johan Ben Azzouz



Shredding branches after the pruning of a tree hedge

Source: Association Française Arbres Champêtres (AFAC)

HOW IS THE CHALLENGE ADDRESSED

Building up the woodchip value chains

Making woodchips for fuel is not an innovation, it has been used way before gas, oil or electricity, and the process is apparently very easy (just shred the pruning residues). However, it is a quite technical and expensive operation for a farmer, and to make it profitable is sometimes a real challenge. This is possible only thanks to well-structured value chains and a good demand. Today, both are lacking in many places to really develop agroforestry woodchip. Over the past few years several local organisations in France took up the challenge.

In Northern France, the Regional Natural Park of Avesnois launched an initiative in 2012 to promote the establishment of heating systems in the area, in partnership with an association that sources and processes woodchips (Atelier Agriculture Avesnois Thiérarche). Now, more than 88 individual and 24 collective heating systems have been

installed, and more than 458 tons of woodchips have been delivered. This represents an equivalent of 700 households powered with the exploitation of 600km of hedges.

Another good example is the Bois Paysan initiative, which is held by a group of 30 farmers in the Ariège department of South France. It began its actions by restoring existing hedges and then evolved to promote new agroforestry planting and knowledge transfer. Thirty-five hectares of land were converted towards agroforestry from 2015, creating several km of new hedges. Nowadays, ten of the farmers are gathered into a distribution company to process and sell directly high-value products from this “farmers’ wood”, aggregating direct value from a locally available resource. This company already signed 20 offtake contracts with gardening and hardware stores for products like mulch (ramial chipped wood), charcoal, and timber.



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Keywords: Woodchip; energy; bocage; tree hedges

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HIGHLIGHTS

- In terms of cost per kWh, woodchips sourced locally are 10 times cheaper than electricity
- For a 260m² house, a woodchip heating system has a higher cost of installation (12500€ more) but allows savings of 150€/month on raw material.
- 100m of tree hedge can supply the equivalent of 2500kg of gas or 30000kWh of electricity in 10 years.
- Sustainable sourcing practices must be guaranteed for the woodchips to prevent hedges depletion.
- The local woodchips value chain can promote the creation of local jobs, 3 or even 4 times more than classic oil or gas value chains.



Open-air warehouse for woodchip storage
Source: Association Française Arbres Champêtres (AFAC)



watch videos

FURTHER INFORMATION

¹Data from the PEGASE statistics, French Ministry of Ecology, Sustainability and Energy

²Case study made by the association Bois Energie Bretagne in 2010, France. <https://bit.ly/2ZtWeGP>

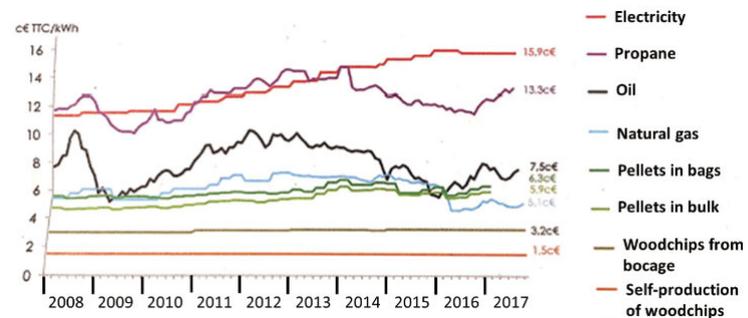
ADVANTAGES AND DISADVANTAGES

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With the increase of fuel prices, wood-fuel now appears as a valuable energetic alternative. It can significantly decrease the cost of heating (1,5ct€/kWh against 15,9ct€/kWh for electricity or 5,1ct€/kWh for natural gas¹) for collective buildings (e.g. schools, hospitals, offices). However, the installation cost for a woodchip heating system is higher than one powered by fuel or propane. For example, to heat a 260m² house, the total installation cost for a fuel heating system would be around 8500€, against 26000€ for a biomass heating system. The savings while using a biomass facility would be around 150€/month, and the overcost of installation paid in only 5 years².

Promoting the local woodchip value chain is also a way of supporting the creation of jobs locally (3 or even 4 times more than gas or oil value chains). More than 22 SMEs processing and selling woodchips from pruning hedges were created these past years in France³. Moreover, this heating alternative is also a way of decreasing CO₂ emissions, especially because the woodchips are sourced locally, reducing the transport footprint compared to gas or fuel.

This new opportunity could also have drawbacks, though. When demand increases, there are always risks that sourcing is done without sustainable practices, depleting hedges and eventually leading to their destruction. Traceability is a key factor to avoid this situation. Several initiatives in France are tackling this issue and are promoting quality labels to guarantee best sourcing practices of the raw material.



Price evolutions of various sources of heating energy in France
Source: French Ministry of Ecology, Sustainability and Energy

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