

Forest fuels: putting trees to work?

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Forests should not have to do the work previously performed by fossil fuels.

The UK has now gone an entire week without burning coal to produce electricity - for the first time since 1882. Solar panels and offshore wind farms took much of the credit for the event earlier this year, but far less attention was accorded to an increasingly vital source of renewable electricity: wood pellets.

Burning wood pellets to generate electricity is about 10–35 percent less efficient than burning coal. Since carbon dioxide released by wood pellets can theoretically be compensated for if trees are regrown on the same land after they have been harvested, however, their use is currently subsidised by the UK Government.

Around eight million tonnes of wood pellets were burned to generate electricity in the UK in 2018, almost all of them produced from trees growing in forests located abroad. In fact, 4.8 million tonnes of wood pellets were imported from the US alone, most of these being produced from the extensive forests of the US south.

Rapid growth

Much of this region's 250 million acres of forest is explicitly referred to as 'working forest' - having long been used to produce paper, furniture, construction materials and other commodities.

Timber harvests in the region have increased significantly in the past 50 years. But wood pellet production in the region has itself grown rapidly, from almost nothing in the early 2000s, to around

10 million tonnes in 2017. In this context, concerns about the industry's environmental impacts are running high.

In July this year, and despite concern that it could drive forest degradation and generate air pollution, regulators granted permission for a \$140-million wood pellet plant to enter operation in the city of Lucedale, Mississippi.

The plant will produce 1.4 million tonnes of wood pellets each year, making it the largest facility in the world, and the latest addition to a tranche of more than 20 plants now operating across 11 states stretching from Texas in the west to Virginia and the Carolinas in the east.

'Working' forests?

Protagonists of wood pellet manufacturing insist that this new industry is good news both for the region's forests, and for its people.

For one thing, strong markets for forest products incentivise landowners to keep forest as forest—or at least as 'working forest'—reducing the likelihood of incursions from urban development or agriculture. And the industry generates employment; the Lucedale wood pellet plant, for example, will employ 90 workers, and could generate many more jobs indirectly.

When it comes to climate change specifically though, it matters that wood pellet manufacturing generates demandspecifically for smaller-diameter trees and forestry residues, historically the mainstay of a paper industry currently undergoing painful restructuring.

Healthy markets for these kinds of wood push landowners to overplant their forests with many more trees than can be supported through to full saw-log size. As these trees grow and start to encroach on one another, the forest can then be 'thinned' out and sold to wood pellet plants or paper mills, enabling landowners to derive intermediate income many years before they will eventually go on to sell larger trees to sawtimber mills for the construction and furniture industries.

Crucially, protagonists of wood pellet manufacturing argue that because smaller trees grow faster than their older counterparts, they are also more efficient at sequestering carbon. Actively managing working forests to produce both wood pellets and other commodities might therefore enhance, at least in theory, the rate at which those forests draw carbon dioxide down from the atmosphere.

Environmental concerns

But the view being advanced here is not one of forests contributing to climate change mitigation by permanently storing carbon themselves. Rather, it is one of forests working harder to transfer carbon dioxide out of the atmosphere and into diverse forms elsewhere, whether as fuel, paper, furniture, or more permanent elements of the built environment. In short, these forests are not carbon sinks, but carbon conveyors.

Opponents of wood pellet manufacturing in the US South point to studies showing that it still takes many decades recoup the carbon emissions which are ultimately generated by burning wood pellets for electricity—time which countries cannot afford to waste if average global temperature increases are to be kept below 1.5, or even 2, degrees Celsius.

With regard to wider environmental impacts meanwhile, it matters not only that the working forests on which wood pellet producers rely are generally less biodiverse than older, unmanaged forests. There are also accusations that the industry is incentivising the clear-cutting of mature trees in ecologically sensitive landscapes, like the bottomland hardwood forests of the region's coastal plains.

Furthermore, the impacts of wood pellet production itself—for instance in the form of air pollutants generated by the facilities which process trees into a pelletized form—are said to be borne disproportionately by low-income communities where rates of social exclusion and ill health are already very high.

In this context, it is perhaps little wonder that campaigners have argued for badly-needed new jobs in the region to be linked not to wood pellet manufacturing, but rather to investment in alternatives such as solar and wind power.

Future fuels?

Efforts to highlight the environmental and social costs of wood pellet manufacturing in the US South are vital, of course. But there is a more fundamental question at stake here as well. This is the question of what kind of future the working forests of the US South should ultimately be working for.

In making the case for working forests of the US South to be seen as climate-friendly sources of renewable electricity, protagonists of wood pellet manufacturing advocate replacing older, slowergrowing trees with younger, faster-growing ones. In so doing, they impose upon forests a logic of value as something that is best derived from productivity increase, hard work, and perpetual growth.

But this logic of value has its roots not in the 'nature' of forests themselves, but rather, as Cara Daggett has recently shown, in the industrial revolution and its promise of development and prosperity driven by the intensive exploitation of new-found fossil energy reserves.

There is no reason why abandoning fossil fuels should not also entail abandoning the idea that prosperity and energy consumption are necessarily linked.

There is nothing intrinsically wrong with making use of forests, of course—such practices have underpinned all civilisations, industrial and preindustrial. But there is also nothing which dictates that forests of the future should have to do the work previously performed by fossil fuels. And there is certainly nothing about the trees of the US South specifically that makes them 'natural' sources of renewable electricity for the UK.

Collective objectives

So regardless of the precise social and environmental impacts of wood pellet manufacturing, local communities in the US South—including not only businesses, landowners and foresters, but wider citizens too—should still have an opportunity to redefine the collective objectives the forests and communities in the region should be working towards.

After all, if the wood pellet industry doesn't offer the right kinds of jobs for the region's people, it stands to reason that it probably doesn't offer the right kinds of jobs for the region's trees either.

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