



Can't see the trees for the wood

The great carbon scam

The largest source of "clean" energy isn't reducing carbon emissions by as much as officials claim, says **Michael Le Page**

ON THE face of it, Europe is a leader in tackling climate change, on course to get 20 per cent of its energy from renewable sources by 2020. But don't cheer just yet.

Why? Because the biggest source of renewable energy in the European Union isn't one of the ones everyone talks about – wind, solar or even hydro. No, the EU now gets more than 60 per cent of its renewable energy from biomass: some from crops grown to make liquid biofuels, but mostly from waste wood and felled trees.

That means about a tenth of the energy that Europeans use for heating, transport and electricity

will soon come from forests and farms. Many fear that this push for biomass will be disastrous for wildlife and drive up food prices.

But what's most shocking is that this push is based on flawed assumptions. The carbon balance sheets of developed countries hide a scam, one whose long-term effects could be far more damaging than the subprime mortgage scandal that led to the global recession of 2008.

Overall, bioenergy may be reducing emissions compared with fossil fuels, but not by nearly as much as is claimed. That's because UN and EU rules mean countries don't have to count the

significant carbon dioxide produced by burning biomass.

"The Europeans are to some extent claiming reductions that are not real," says Timothy Searchinger at Princeton University.

This accounting trick means biomass is sometimes being favoured over other renewables that could cut emissions more. Bioenergy is after all a very inefficient form of solar energy. It captures at best 0.3 per cent of

the sun's available energy, whereas solar panels capture more than 10 per cent.

Worse still, in some cases, switching to biomass actually produces higher emissions than fossil fuels. In other words, EU taxpayers are funding projects that are speeding up global warming.

It's not just a European issue. In the US, too, bioenergy is the single largest source of renewable energy. Forestry groups growing rich from selling wood to Europe want US lawmakers to introduce the same flawed accounting system. The big worry is that countries like Indonesia, Brazil

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and the Democratic Republic of the Congo will follow suit and start cutting down their trees to generate energy too. "It's a kind of madness," says Searchinger.

So why is it happening? When researchers first began totting up global carbon emissions, they decided to count those from cutting trees when they were felled. To avoid double counting,

"If you burn certain feedstocks you are going to release more carbon than burning coal"

they ignored CO₂ from burning.

During UN climate talks, the same approach was adopted. Biomass emissions are regarded as carbon neutral, so don't count towards a country's total. "Just assuming that biomass is carbon neutral is daft," says Pete Smith at the University of Edinburgh, UK (see "Why bioenergy can be bad", below right).

In theory, if a forest is felled for biofuel, it should be reported in the EU's greenhouse gas inventory as emissions due to a change in land use, says John van Ardenne of the European Environmental Agency. But developing countries don't have to report land-use changes under the UN system, and there are so many loopholes that even developed countries seldom count emissions properly.

In particular, countries don't report actual changes in carbon stocks, but rather changes from what they expect. Most developed countries already include bioenergy in their projections, so they don't have to report these emissions when they happen.

"It's a basic accounting error," says Searchinger. "You could cut down the Amazon, turn it into a parking lot, ship the trees to Europe to replace coal and Europe would claim a reduction in emissions."

It's an error with huge consequences. The assumption that burning biomass is carbon neutral underpins the EU's 2020

renewables goal, which is driving a huge expansion of bioenergy backed by hundreds of millions of euros of taxpayers' money. We talk far more about wind and solar, but they provide less than 20 per cent of the EU's renewable energy (see chart, right).

It is not recognised how much of the renewables target is being met by bioenergy, says David Joffe of the UK Committee on Climate Change, which advises the government on how to meet its emissions targets. "The rules are not strong enough to ensure that it is sustainable."

There have been efforts to change that. For instance, the EU has introduced rules specifying that biofuels must reduce emissions by a certain amount. But these rules do not apply to wood – the biggest source of biomass energy – and there are major flaws in the way emissions are calculated.

Counting carbon

It used to be standard practice to calculate emissions by comparing the effect of harvesting biomass to the current state of a forest. But if you leave forests alone, the carbon stock usually increases.

WHY BIOENERGY CAN BE BAD

Suppose someone has a 50-year-old oak tree in their garden that they fell and burn to heat their house.

Compared with coal, wood is a poor fuel, producing more carbon dioxide per unit of heat gained. As the roots left in the ground rot, additional CO₂ will be released. So burning the tree will put much more CO₂ into the atmosphere than burning coal for the same amount of heat.

If another tree is planted, it will soak up that CO₂ after half a century or so. But if the original tree was left to grow, it could soak up all the coal CO₂ and more. That means it could be centuries before there's any benefit in burning wood over coal.

So if the aim is to cut carbon

emission estimates are much higher.

People argue over the figures, which vary hugely depending on the assumptions you make, but the take-home message is clear: "If you burn certain feedstocks – it's not all feedstocks – you are going to release more carbon than if you were burning coal," says Nicklas Forsell at the International Institute for Applied Systems Analysis in Vienna, Austria.

Current rules also fail to count indirect effects. For instance, if low-grade wood currently used to make paper is burned for energy instead, pulp producers have to source wood from elsewhere. That increases the pressure on forests.

Ignoring these effects can make some forms of bioenergy look good in theory when in reality they increase emissions and drive deforestation.

For instance, a December 2015 report for the European Commission concluded that using more bioenergy could help reduce emissions – but it assumes indirect effects can be avoided.

Even then, it found that if the use of forest biomass keeps expanding, there would be a net increase in emissions from 2030

emissions over the next few decades – which we must do to have any chance of limiting warming to around 3°C – burning trees is usually a bad move.

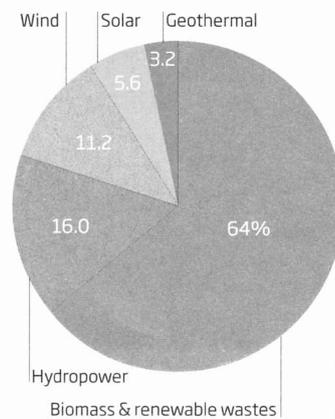
SOME TREES GOOD

The real world is far more complex. Some forests are thinned to reduce fire risk, and the thinnings are burned on the roadside. Generating energy from this waste really can deliver instant emissions reductions.

However, thinning a virgin forest reduces its carbon stock and so increases short-term emissions. If we want to keep carbon locked up in forests and out of the atmosphere, it's best to just let trees grow.

The hidden renewable

Biomass provides the bulk of the EU's renewable energy. Together these sources contribute over 12% of the EU's energy consumption



due to this form of bioenergy, rather than a reduction.

So what proportion of bioenergy increases emissions rather than reducing them? No one knows, says Joffe. "That's part of the problem."

And little is being done about it. A few years ago when the UK government's own scientists said that many forms of forest biomass increase emissions, the findings were ignored, Searchinger says. "They've ignored it because they've already committed," he says. "And because they don't know what else to do."

The EU is drawing up its post-2020 renewable energy strategy, and is expected to release proposals on making bioenergy more sustainable later this year. NGOs such as Oxfam and WWF are calling for sweeping reforms, including better carbon accounting, but we are more likely to get further ineffective tweaks.

If companies used flawed accounting methods to calculate financial results, we would call it fraud. For countries to claim emissions reductions on the basis of flawed accounting can surely be described as fraud too. And in the long run it's going to cause a lot more harm than the banks did. ■