EnBW's plans to replace coal with wood pellets in their Rostock and Altbach-Deizisau coal plants: Impacts on forests and climate

By Almuth Ernsting (Biofuelwatch) | 17th May 2021

Summary:

EnBW is working with Onyx and Enviva to try and persuade the government to grant significant new subsidies which would allow EnBW to convert their coal plants in Rostock and Altbach-Deizisau, and potentially others, too. If those conversions went ahead the extra demand for wood pellets would put forests under further pressure – most likely forests in the Southeastern USA, where pellet producer Enviva is in discussions about a possible sourcing agreement with EnBW. Enviva routinely sources wood from mature roundwood from clear-cut biodiverse hardwood forests. The climate impacts would be no less bad than those of continued coal burning. Biomass conversions would distract from the urgent need to rapidly close those and other coal plants and to invest in genuinely clean and low carbon wind and solar power.

Background: Biomass and the German coal phaseout

Germany's 2020 Coal Phaseout Law[1] requires a gradual phasing out of electricity from the country's 130 coal plants between 2022 and 2038. A survey on operators of plants burning hard coal by Environmental Action Germany showed that most are planning to replace coal with fossil gas,[2] which, too, is not compatible with limiting global warming to 1.5 or even 2 degrees. However, several energy companies, especially Onyx and EnBW are looking to convert some of their coal units to burning biomass.

If all coal-to-biomass conversion proposals that have been mooted by different energy providers were to go ahead, biomass would still only replace a very small fraction of Germany's current coal power capacity of 40 Gigawatt. However, experience from other countries shows that replacing even a small amount of coal with wood has disproportionate impacts on forests and land use. The world's largest coal-to-biomass conversion project is Drax power station in the UK, with a biomass capacity of 2 Gigawatt. Drax, who import all their wood pellets, are burning the equivalent of almost 1.3 times the UK's total annual wood production, yet by doing so they meet less than 1% of the UK's final energy demand.[3] Wind and solar power, followed by energy efficiency, played the largest role in the UK's almost complete coal phaseout.[4]

Altbach-Deizisau Power Station
Photo: Dierk Schaefer, Flickr

Coal-to-biomass conversions are not cheap but rely on large direct or indirect subsidies: Drax is receiving €2.65 million in direct and another €822,000 in indirect subsidies every single day.[5]

Germany's Coal Phaseout Law requires the federal government to explore further subsidies for such biomass conversions. EnBW, Onyx and the world's largest wood pellet producer, US company Enviva, have commissioned a report for subsidies modelled on those Drax is getting in the UK[6].

Proposed conversion of EnBW's Rostock and Altbach-Deizisau coal plants:

Campaigners from NGOs have been informed by EnBW that they are considering replacing coal with biomass in both their Rostock and Altbach-Deizisau coal plants and that they are in discussion about biomass sourcing with the US wood pellet producer Enviva.

Based on published information about the two plants, Biofuelwatch estimates that the Rostock plant would require around 240 tonnes and the Altbach-Deizisau coal units 200 tonnes of wood pellets per hour, i.e. approximately 440 tonnes combined. What is less clear is, how many hours those plants would likely be running if converted to wood. At full capacity,[7] they would require around 1.92 million tonnes of pellets in total. However, the report they helped commission about the subsidies they would like for converting to biomass, refers to 3,500 annual hours, which would translate to 840,000 tonnes of pellets – which would require 1.68 million tonnes of green (i.e. freshly cut) wood.

Rostock Coal Plant
Photo: Ra Boe, Wikipedia

Impacts of Enviva's wood pellets on forests and wildlife:

Enviva, who are hoping to supply EnBW's wood pellets are the world's biggest pellet producers. Their nine plants are located in the Southeastern USA, four of them in North Carolina.

Investigations by US environmental NGOs and independent journalists[8] show that wood used in Enviva pellet mills is routinely sourced from clear-cuts of mature hardwood forests in a region designated as the North American Coastal Plain Global Biodiversity Hotspot.[9] They also document the vast quantities of whole trees and other large-diameter wood—biomass feedstocks known to be particularly high-carbon—are entering the biomass industry's supply chain. In 2016, a peer-reviewed study[10] modelled likely future wood sourcing for bioenergy (including pellets for export) in the southern USA. It concluded that "*Our results demonstrate the complex landscape effects of alternative bioenergy scenarios [and] highlight that the regions most likely to be affected by bioenergy production are also critical for biodiversity*". Even if the area classified as 'forest land' was to increase in the context of increased biomass, the "*remaining forest [would be] composed of more intensively managed forest and less of the bottomland hardwood and longleaf pine habitats that support biodiversity*", i.e., there would be more conifer plantations and less biodiverse forests. Impacts on the region's highly biodiverse natural forests have been demonstrated by NGO investigations as well as investigations by reporters. Enviva's only data shows that just 17% of the wood they use consists of sawmill and other processing residues.[11]

Enviva pellet plant southeastern USA
Photo: Dogwood Alliance

Would the conversions be okay if pellets were sourced from elsewhere?

Europe's main pellet exporting region are the Baltic States, where impacts on forests are also severe. A 2020 report by Estonian Fund for Nature and Latvian Ornithological Society[12] illustrated the impacts of the growing pellet industry on forests, forest carbon, and forest birds. It shows that, in Latvia and Estonia, logging has been intensifying steeply in recent years, with clearcutting as the dominant logging method. The large majority of forests in the region are semi-natural, i.e., they have been previously logged but consist of mixed native species and remain important for wildlife. In both countries, logging is happening in Natura 2000 and other supposedly protected sites, too.[13] Estonia's forest birds are declining at a rate of around 50,000 breeding pairs a year.[14] In Latvia, the Hazel grouse declined by 79% from 2005 to 2018, and the Black stork by 60% from 1989 to 2018.

Across the EU, logging rates have been increasing steeply since 2015, with scientists from the European Commission's Joint Research Centre pointing to a clear correlation with greater demand for forest biomass energy.[15]

Bad for the climate:

Unlike wind and solar power, biomass energy comes from burning carbon. In fact, the smokestack emissions of burning wood are at least as high as those from burning coal per unit of energy, and they could even be higher. This CO2 released will have been sequestered by trees over a period of decades, which means that, in the most optimistic scenario, it will still take decades for it to be reabsorbed by new trees. When forest ecosystems are replaced with tree plantations, much carbon is lost to the atmosphere forever. And clearcutting forests releases additional carbon from soils, which, again, will not be restored for a long period, if at all. Moreover, mature forests keep sequestering carbon, so when they are cut down, more of the carbon emitted from fossil fuel burning stays in the atmosphere for decades to come. If we want to have any hope of keeping global warming to 1.5 or even 2 degrees, we cannot afford to burn coal, nor to cut down large numbers of trees for burning. Finally, forests also play a vital role in regulating rainfall cycles and protecting communities from droughts and flooding. Earlier in 2021, 500 scientists warned world leaders in an Open Letter to the European Union: "As numerous studies have shown, this burning of wood will increase warming for decades to centuries. That is true even when the wood replaces coal, oil or natural gas."[16] Similar warnings have been issued by the European Academies of Science Advisory Council.[17]

---

1 gesetze-im-internet.de/kvbg/KVBG.pdf
2 duh.de/presse/pressemitteilungen/pressemitteilung/deutsche-umwelthilfe-fordert-kohleausstieg-muss-zum-einstieg-in-gruene-fernwaerme-werden/
3 biofuelwatch.org.uk/axedrax-campaign/
4 unearthed.greenpeace.org/2017/06/07/coal-gone-away-uk-wind-solar-here-to-stay/
5 ember-climate.org/commentary/2021/02/25/drax-biomass-subsidies/
6 owncloud.enervis.de/owncloud/index.php/s/BQrJT3HOCR2NFxw
7 In Environmental Impact Assessments, 8,000 hours a year is generally assumed to constitute 'full capacity'.
8 See: dogwoodalliance.org/2019/06/caught-in-the-act/, dogwoodalliance.org/2020/05/enviva-continues-to-destroy-natural-forests/, climatecentral.org/news/pulp-fiction-the-series-19592, climatecentral.org/news/pulp-fiction-the-series-19592, nyheder.tv2.dk/samfund/2019-09-09-tv-2-afsloerer-fejl-i-klimakontrol-helt-sort-siger-ekspert, imdb.com/title/tt8288424/
9 cepf.net/stories/announcing-worlds-36th-biodiversity-hotspot-north-american-coastal-plain
10 Bioenergy production and forest landscape change in the southeastern United States, Jennifer K. Costanza et.al., GCB-Bioenergy, August 2016
11 envivabiomass.com/sustainability/responsible-sourcing/wood-supply-map/

12 media.voog.com/0000/0037/1265/files/Biomass_report_ENG%20_2020.pdf
13 eandt.theiet.org/content/articles/2020/12/why-british-biomass-energy-is-a-burning-issue-for-estonia-s-forests/
14 eoy.ee/hirundo/files/Nellisi_Volke_2019-1.pdf
15 Abrupt increase in harvested forest area over Europe after 2015, Guido Ceccherini et.al., Nature, July 2020
16 woodwellclimate.org/letter-regarding-use-of-forests-for-bioenergy/
17 easac.eu/fileadmin/PDF_s/reports_statements/Carbon_Neutrality/EASAC_commentary_on_Carbon_Neutrality_15_June_2018.pdf