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Research on Subsidies for Logging & Burning of Woody Biomass



By including bioenergy in renewable energy targets, the EU is promoting direct and indirect subsidies for it, claiming that it is a sustainable alternative to fossil fuels.

Every year billions of euro's in renewable energy subsidies paid out of a surcharge on our electricity bills – went to power stations burning wood. This is money which should go to genuinely low-carbon renewables such as wind, wave and solar power. Altogether, far more wood is being burned for electricity than is produced annually in Europe.

Far from being green energy, biomass burning makes climate change worse, destroys forests and damages biodiversity. It also harms communities who live near wood pellet plants and biomass power stations and wastes bill-payers' money on a false solution to our energy needs.

Professor Martijn Katan Substantionates Whole Tree Claim

[2019-11-29-mkatan-onderbouwing-nrc-artikel-kolencentrales-gaan-bomen-stoken-dutch.pdf](#)

This substantiation, written by Professor Martijn B. Katan, was originally published in NRC Handelsblad, a major Dutch National newspaper and

RECENT

[2019-11-29-mkatan-onderbouwing-nrc-artikel-kolencentrales-gaan-bomen-stoken-dutch.pdf](#)

2019-11 \ \ Professor Martijn Katan

[2019-11-25-ngos-letter-to-dutch-government-biomass-is-not-a-lifeline-for-coal-english.pdf](#)

2019-11 \ \ 37 NGO's

[2019-11-22-edsp-eco-pro-biomass-lobbyfacts-research-part-3-scientists-martin-junginger-english.pdf](#)

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2019-11 \ \ NRDC

[2019-10-09-ngos-letter-to-the-danish-parliament-and-climate-minister-regarding-forest-biomass-english.pdf](#)

2019-10 \ \ Multiple NGO's

provides evidence that wood pellets used for bioenergy consist mostly of whole trees. He explains how subsidies for woody biomass has created a huge rise in demand for wood and has driven up the prices, whereas had these subsidies not been allowed, the burning of trees for energy would not have been economically viable and the trees would be left standing, capturing CO₂. In line with this he observes how the demand for wood chips rose and fell as subsidies came in and went. And indeed, at the end of 2018 export volumes from the U.S. to the Netherlands, the fourth largest importer of U.S. wood pellets with 2.3% of market share, more than tripled as the country returned to co-firing at the end of 2018

(<https://forisk.com/blog/2019/11/13/north-american-wood-pellet-exports-q4-2019-update/>). This substantiation which was added to the the original article is supplemented with sources and his calculation that supports his statement that one would need forests five times the size of Estonia to be able to supply the three coal plants in the Netherlands with enough wood if indeed, as some claim, only waste wood was used as fuel.

"Proponents [of biomass] say that no one would choose to make pellets from whole trees, because trees yield more if you "cut planks from them". But this is no longer the case due to the billion-dollar subsidies for biomass. The market price of freshly harvested trees was eleven dollars per ton at the time, but pellet manufacturers offered \$ 26 to \$ 53 per ton. The price was pushed up by subsidies."

"If energy companies would not be subsidized for using biomass, they pellets would be too expensive, so production stops and the trees remain in the forest. Also in the Netherlands, the import of pellets goes up and down as the subsidies come and go. This is also why the Netherlands did not import pellets from the US in 2018, as Minister Wiebes recently stated in parliament."

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37 NGO's Send Letter to the Dutch Government on Biomass
[2019-11-25-ngos-letter-to-dutch-government-biomass-is-not-a-lifeline-for-coal-english.pdf](https://www.37ngos.nl/wp-content/uploads/2019/11/25-ngos-letter-to-dutch-government-biomass-is-not-a-lifeline-for-coal-english.pdf)

In this letter 37 NGO's urge the Dutch House of Representatives to ensure that no further subsidies will be granted for burning biomass either in coal power stations or in dedicated biomass plants and to redirect the biomass subsidies already granted towards non-emissive renewable energy. Despite the fact that 800 scientists, many different studies (and counting) and EASAC having concluded that cutting down trees to burn in power stations

[2019-09-11-easac-environmental-experts-call-for-international-action-to-restrict-climate-damaging-forest-bioenergy-schemes-english.pdf](#)

2019-09 \ \ EASAC

[2019-09-03-mob-milieuorganisaties-voorzien-nieuwe-juridische-stikstofprocedures-waarschuwing-voor-quick-fix-die-niet-tot-de-oplossing-leidt-dutch.pdf](#)

2019-09 \ \ MOB

[2019-08-14-tpfc-misguided-strategy-burning-wood-to-mitigate-climate-change-in-germany-english.pdf](#)

2019-08 \ \ TPFC

[2019-08-09-easac-serious-mismatches-continue-between-science-and-policy-in-forest-bioenergy-english.pdf](#)

2019-08 \ \ EASAC

[2019-08-00-eu-biomass-legal-case-main-arguments-english.pdf](#)

2019-08 \ \ EUBiomassLegalCase

[2019-07-08-epn-report-threat-map-are-forests-the-new-coal-english.pdf](#)

2019-07 \ \ EPN

[2019-06-23-wageningen-university-research-duurzame-biomassa-voor-de-productie-van-waterstof-dutch.pdf](#)

2019-06 \ \ WUR

is not compatible with the need to try and stabilise the climate, the EU hasn't budged. Most of the NGO's that cosigned the letter are from Estonia and the (southwestern) U.S. which are two areas whose forests have been heavily effected by the subsidies granted for the burning of woody biomass in the EU.

"The upfront CO2 emissions from burning wood in power plants are even higher than those from coal per unit of energy."

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Paid Pro-Biomass LobbyFacts Research - The Scientists [2019-11-22-edsp-eco-pro-biomass-lobbyfacts-research-part-3-scientists-martin-junginger-english.pdf](#)

This report describes the paid pro-biomass lobbying activities of scientists in the Netherlands and is part of an extensive study on the paid pro-biomass lobbyfacts in the Netherlands. Researchers, professors and the directors of universities, (former) members of the House of Representatives, ministers and officials from the government are paid directly or indirectly through biomass projects that are allocated by the companies who benefit from burning woody biomass through subsidies paid by the government and the European Union. This specific article focuses on the Copernicus Institute of Utrecht University. Other institutes are discussed in following chapters.

"Cramer lobbied the criteria into The Hague government chambers so Essent (RWE) could start a global production and trade in biomass. This was received with protest. Several members of the House of Representatives rejected the proposed directive as being without obligation and demanded stricter guarantees and conditions for the future subsidies that Cramer intended to provide for the production of biomass. They insisted on more control and sanctions to guarantee sustainability. Cramer ignored all criticism. According to her, the business community would be wary of using 'wrong' biomass and of being publicly disgraced. In her view, this would be enough motivation for companies to cooperate with sustainable criteria. She also spoke of a first step. Together with the producers, Cramer wanted to ensure that the criteria were "practically feasible". After that we can do check ups, she said. However, she did not state that she was in a conflict of interest because her own research institute had determined the criteria that resulted from a close and paid collaboration with RWE Essent."

[2019-06-17-nrdc-dogwoodalliance-southern-environmental-law-center-global-markets-for-biomass-energy-are-devastating-us-forests-english.pdf](#)

2019-06 \ \ Multiple NGO's

[2019-06-03-tweede-kamer-hoorzitting-bomen-kappen-voor-klimaat-en-natuur-roofbouw-of-noodzakelijk-kwaad-dutch.pdf](#)

2019-06 \ \ GOV NL

[2019-04-00-environmentalpaper-the-reputational-and-financial-risks-of-investing-in-forest-biomass-energy-english.pdf](#)

2019-04 \ \ EnvironmentalPaper

[2019-03-04-vox-europes-renewable-energy-policy-is-built-on-burning-american-trees-english.pdf](#)

2019-03 \ \ VOX Research

[2019-02-10-easac-forest-bioenergy-carbon-capture-and-storage-and-carbon-dioxide-removal-english.pdf](#)

2019-02 \ \ EASAC

[2018-12-17-european-environment-agency-report-renewable-energy-in-europe-english.pdf](#)

2018-12 \ \ EEA

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EU Clean Energy Policies Lead Forest Destruction

[2019-11-12-nrdc-burnout-eu-clean-energy-policies-lead-forest-destruction-english.pdf](#)

This report is based on research from the consulting firm Trinomics. It provides the most comprehensive and up-to-date assessment of government subsidies and other forms of financial support offered to biomass energy producers in the European Union. We focus on the 15 E.U. member states most heavily reliant on bioenergy and cover the period from 2015 to 2018. The Technical Appendix contains Trinomics' full report, including a detailed description of methods, analyses, and results.

"...Burning forest biomass releases large amounts of climate-warming pollution into the atmosphere and destroys crucial carbon capturing ecosystems, setting us back decades in the fight against climate change right when we most need to be moving forward with urgency. But the European Union has erroneously decided to categorize biomass energy as a form of renewable energy and treats biomass as "carbon neutral." That effectively places it on par with solar or wind. On top of that, E.U. member states are providing huge financial subsidies to incentivize this practice. In some member states, biomass energy subsidies now make up a large share of all subsidies available to renewable energy sources.

Most subsidies,... are directed toward burning biomass in power plants for electricity and for combined heat and power (CHP) generation. This usage is particularly destructive for our environment and climate because it generally relies on trees and other biomass taken from forests. This report is focused primarily on this type of bioenergy.

In 2017 the 15 E.U. member states included in this assessment spent more than €6.6 billion to directly subsidize bioenergy. More than half these subsidies were paid out in just two countries: Germany and the United Kingdom. The United Kingdom not only is a top subsidizer of bioenergy but relies most heavily on the most damaging type: burning forest biomass for pure electricity production.⁸ Meanwhile, Denmark spent the most per capita to subsidize biomass energy in 2017. Neither France nor the Netherlands currently dedicates a significant share of total renewable energy subsidies to biomass. However, with massive new subsidy payouts recently approved by the Dutch government and a high-profile conversion of a coal plant to burn forest

are currently processing reports from 2019 and will work our way back into the [hundreds of official research reports commissioned the last decade.](#)

biomass in France, both countries are at serious risk of compromising their climate goals by locking in dirty bioenergy infrastructure for years to come.

Additionally, it is worth noting that hidden subsidies in the form of energy tax exemptions or carbon tax exemptions are granted to E.U. bioenergy producers under the false assumption of biomass "carbon neutrality." In some instances the value of these exemptions exceeds that of the subsidies evaluated in this report. In Denmark and Sweden, for example, these hidden subsidies total hundreds of millions of euros per year.

a shift to burning biomass for CHP does not alleviate all—or even most—concerns regarding biomass subsidies. Biomass harvest from forests—regardless of the facility in which it is burned—will almost certainly result in a lasting carbon debt by reducing forest carbon stocks.

Additionally, efficiency requirements tied to CHP subsidies vary dramatically from country to country and depending on the size of the facility, and data on CHP plant efficiencies are often not readily available. These efficiency requirements can be challenging to enforce, and there is scope for fraud.

In 2018 the E.U. Parliament had an opportunity to meaningfully reform its policy on biomass energy through an updated Renewable Energy Directive (RED), which mandates renewable energy targets, among other things, within the European Union. Unfortunately, even when faced with mounting evidence that burning biomass for electricity exacerbates climate change and that a massive spike in E.U. demand for biomass was putting some of the world's most biodiverse and precious forests at risk, European policymakers failed to enact stricter regulation that would have ruled out subsidies for the most carbon-intensive and environmentally damaging forms of biomass burning..."

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NGOs Letter to Danish Parliament Regarding Forest Biomass
[2019-10-09-ngos-letter-to-the-danish-parliament-and-climate-minister-regarding-forest-biomass-english.pdf](#)

In this letter to the Danish parliament, international NGO's, representing millions of activists in the United States, Estonia, Lithuania, the U.K., and Germany, urge government 1) to impose a levy on biomass, 2) to phase out the subsidy for burning biomass from wood, and 3) to determine a date for phasing out biomass as soon as possible. All this in order to avoid extensive harm to the world's forests and the acceleration of climate change that will

be caused by treating biomass as a green energy resource. Nearly 70% of Denmark's renewable energy supply (2017) is met by burning woody biomass, as a result of which 30% more carbon is being emitted than is required to report. On top of that, TV2 investigation series made it apparent that voluntary sustainability standards agreed upon by the biomass industry are falling short of genuinely protecting forests, climate, and communities.

"Continued reliance on biomass power syphons scarce resources (taxpayer subsidies and broader investments) from genuinely zero-carbon energy solutions, such as solar, onshore wind, offshore wind, and geothermal, as well as batteries and demand-side response innovations. It is these technologies, not coal and other fossil fuels, which are the correct point of comparison for determining whether biomass has any role left to play in decarbonizing Denmark's power sector."

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Call for Action to Restrict Climate Damaging Bioenergy [2019-09-11-easac-environmental-experts-call-for-international-action-to-restrict-climate-damaging-forest-bioenergy-schemes-english.pdf](#)

This press release from EASAC followed soon after they'd published their paper "Serious mismatches continue between science and policy in forest bioenergy" and offers a short summary of their main findings.

"The large renewable energy subsidies made available in some member states have led to a huge increase in forest biomass use- including to replace coal in large power stations. The process of harvesting forests to produce wood pellets has been industrialised to a scale of many millions of tonnes per year and transported over thousands of kilometres. [...] This is bad for the climate and bad for public finances."

"Regulations must limit subsidies to biomass sources with short payback periods (examples include agricultural and forestry wastes, coppiced trees or fastgrowing grasses). At the same time, the UNFCCC reporting guidelines should be urgently revised to remove current perverse incentives to exploit the loophole allowing imported biomass to be zero-emission."

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Warning for quick fix that does not lead to the solution

[2019-09-03-mob-milieuorganisaties-voorzien-nieuwe-juridische-stikstofprocedures-waarschuwing-voor-quick-fix-die-niet-tot-de-oplossing-leidt-dutch.pdf](#)

This document written by Johan Vollenbroek from the Mobilisation for the Environment organisation warns against another quick fix and states biomass power plants should be shut down immediately.

"...Subsidies for biomass plants and wood-fired power plants must be ended immediately. As a result, profits disappear which puts a brake on unwanted expansions which saves a substantial amount of nitrogen emissions..."

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Misguided Strategy Burning Wood Against Climate Change

[2019-08-14-tpfc-misguided-strategy-burning-wood-to-mitigate-climate-change-in-germany-english.pdf](#)

This report commissioned by multiple organizations like TPFC, WWF, ARA and DenkHausBremen clearly states the reasons why burning woody biomass to mitigate climate change is a misguided strategy.

"...Wood contains less energy than coal, oil or gas. Thus, more of it has to be burned to produce the same amount of energy. According to calculations by the Intergovernmental Panel on Climate Change, heating with wood releases almost twice as much carbon dioxide (CO₂) as using gas..."

"...The European Union has recently updated its Renewable Energy Directive (RED II). Among other things, it aims to increase the share of renewables to 32% by 2030. This is an ambitious target, as the current European average is only 17%. This will further increase wood consumption in the future. One reason is the EU's decision to consider the burning of wood as climate neutral. This decision made it possible for the Member States to subsidise the use of woody biomass as a measure to mitigate climate change..."

"...countries like Denmark, Belgium or the Netherlands, the number of wood biomass power plants is on the rise. In the coming years, European demand for pellets alone will increase by a further six million tonnes. The European Union is one of the most important perpetrators of this misguided development, as it recognises wood burning for electricity production as a climate change mitigation measure. This has made Europe to the most important destination for the international pellet trade..."

"...the EU has decided to increase the share of renewable energy to 32% by 2030 – and most of it currently comes from woody biomass..."

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Serious Mismatches Between Science & Bioenergy Policy

[2019-08-09-easac-serious-mismatches-continue-between-science-and-policy-in-forest-bioenergy-english.pdf](#)

This report considers how current policy might be reformed to reduce negative impacts on climate and argue for a more realistic science-based assessment of the potential of forest bioenergy in substituting for fossil fuels. Since the length of time atmospheric concentrations of CO₂ increase is highly dependent on the feedstocks, the authors argue for regulations to explicitly require these to be sources with short payback period. Furthermore, they re-emphasize the reasons why current policy is achieving the opposite of that intended, and why the urgency of its revision has increased following the conclusion of the Paris Agreement.

"Its simplicity (treating forest biomass as carbon neutral) brought with it political and economic advantages and led to the inclusion of biomass in the European Commission's definition of renewable energy in its 2009 Renewable Energy Directive (RED; EC, 2009), being treated as 'part of the package of measures required to reduce greenhouse gas (GHG) emissions.' The RED allowed governments to offer renewable energy subsidies to substitute coal in large power stations with biomass (without which the economics would be unfavourable), creating the market incentive which has led to the rapid expansion in the demand for forest biomass pellets."

"Renewable energy subsidies are considerable; a single UK power station (Drax) received £789 million in 2018, while the Netherlands recently confirmed €3.6 billion over 8 years to subsidise biomass added to large energy/coal plants."

"[Relative to solar and wind], forest biomass is ineffective in reducing CO₂ emissions; yet it is treated equally in regulations and in some EU countries, comprises the largest proportion of renewable energy subsidies."

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EU Biomass Legal Case Main Arguments

[2019-08-00-eu-biomass-legal-case-main-arguments-english.pdf](#)

This legal document contains the main arguments in the EU Biomass Legal Case where the applicants seek annulment of the inclusion of "forest biomass" – essentially trees, including, stems, stumps, branches and bark – as a renewable fuel within the Renewable Energy Directive (recast) 2018.

"...The use of forest bioenergy can also perpetuate harms to other systems. Co-firing biomass with coal allows coal plants to continue operating and even collecting renewable energy subsidies, perpetuating harms to human health and the climate from burning coal. The statement of Tony Lowes in support of this application describes co-firing biomass in peat-burning plants in Ireland, thereby perpetuating the destructive practice of stripping peat for fuel. The Directive does not recognize peat as biomass, but support for woody biomass co-fired with peat ensures the peat-burning plants continue to operate..."

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Threat Map Are Forests the New Coal

[2019-07-08-epn-report-threat-map-are-forests-the-new-coal-english.pdf](#)

This report was commissioned by the EPN as a wake-up call to those governments that are subsidising coal to biomass conversions; will persuade investors that financing biomass power is not sustainable; and will persuade energy analysts, retailers and consumers to distinguish forest biomass, as a high-carbon renewable energy technology, from lower-emitting technologies like wind and solar.

"...Key Findings;

- 1. Global supply of and demand for forest biomass is predicted to increase more than 250 % over the next decade, having already doubled in the last ten years.*
- 2. Biomass energy, predominantly forest biomass, dominates 'renewable' energy production, dwarfing wind and solar and undermining their prospects by diverting subsidies that should be applied to such genuinely low emissions technologies.*
- 3. Countries in Asia are making the same mistakes that European countries made in encouraging large scale biomass burning for energy production. Japan and South Korea are now heading down the same wrong road that faulty European Union policies enabled, namely subsidising power generation from forest biomass and failing to count smokestack carbon*

emissions resulting from wood burning.

4. *The majority of feedstock for the increasing pellet market will be supplied directly from forests, inevitably entrenching and expanding logging at higher rates over greater areas. This is in stark contrast to findings in the latest Intergovernmental Panel on Climate Change Special Report regarding the urgency of protecting and expanding forests in the near term as critical for avoiding the worst impacts of climate change.*
5. *Growth in the industry is likely to occur by expanding supply from tropical, temperate and boreal forests in developing and developed countries, thereby posing an escalating global threat to natural forest ecosystems including those that are mega-diverse or carbon rich..."*

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Sustainable Biomass for Production of Hydrogen

[2019-06-23-wageningen-university-research-duurzame-biomassa-voor-de-productie-van-waterstof-dutch.pdf](#)

This report was commissioned by the Dutch Government and was intended for the green sector (forest, nature and urbangreen managers) and the policymakers as they need a scientific evidence- based underpinning of the use of biomass (branch and top timber) as a sustainable raw material for bio-energy production and discusses that investments made in the burning of biomass will delay the transformation of higher quality application solutions.

"...Bioenergy plays a role in the energy transition. Whether that is a temporary or a permanent role is difficult predictable, but the higher quality applications (as a green raw material) in other sectors, such as in chemistry, are slowly increasing. Long-term support measures for bioenergy such as subsidies can delay this transformation..."

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Global Markets for Biomass Energy are Devastating Forests

[2019-06-17-nrdc-dogwoodalliance-southern-environmental-law-center-global-markets-for-biomass-energy-are-devastating-us-forests-english.pdf](#)

This report commissioned by NRDC, Dogwood Alliance, Southern Environmental Law Center exposes the damaging logging practices used to source the biomass industry, including the clearcutting of iconic wetland forests.

"...Countries looking to meet their commitments under the Paris Climate Agreement and phase out coal must stop wasting scarce public resources subsidizing dirty and destructive biomass energy. Instead, policymakers in the United Kingdom, other European Union member states, and emerging markets for bioenergy around the world should redirect investments to genuinely zero-carbon energy sources like energy efficiency, solar and wind..."

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Dutch Government Answers to Burning Wood Questions [2019-06-07-minez-minister-wiebes-beantwoording-vragen-over-milieuschade-houtstook-is-vele-malen-hoger-milieuschade-door-aardgas-of-stookolie-dutch.pdf](#)

This document contains the answers from the Dutch government concerning questions about the damage to the environment caused by burning wood.

*"... PvdD party question for the Dutch government:
Do you share the view that it is no longer justified that the government subsidizes and promotes pellet stoves and biomass boilers as renewable energy sources?
If not, why not?..."*

*"...Dutch government answer:
As part of the ISDE evaluation, the government will critically examine the desirability of further stimulation of small-scale biomass combustion..."*

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Dutch Government Hearing Logging Trees for the Climate [2019-06-03-tweede-kamer-hoorzitting-bomen-kappen-voor-klimaat-en-natuur-roofbouw-of-noodzakelijk-kwaad-dutch.pdf](#)

This report commissioned by main parties like the Dutch State Forest Management and it's former Director, Professors at the University and others concerned with the massive amount of trees being logged for biomass production.

"...Input Dutch forest management and nature conservation

Disadvantages of clear-cut exploitation:

- 1. build-up of long-term financial debt;*
- 2. loss of the next-generation forest already established spontaneously;*
- 3. reduction of climate robustness;*
- 4. loss of biodiversity;*
- 5. reduction in the amount of bound CO₂;*
- 6. loss of soil fertility;*
- 7. loss of forest aesthetics..."*

"...Advice:

- stop subsidy for exploitation that destroys the forest ecosystem and leads to losses;*
- stop unnecessary mobilization of CO₂ and mineral loss due to soil tillage;*
- stop subsidies for biomass that should remain in the forest ecosystem..."*

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The Reputational & Financial Risks of Investing in Forest Biomass Energy

[2019-04-00-environmentalpaper-the-reputational-and-financial-risks-of-investing-in-forest-biomass-energy-english.pdf](#)

This briefing document, a collaborative effort by Environmental Paper Network, Biofuelwatch and Global Forest Coalition, sums up the reputational and financial risks involved with investing in forest biomass energy. "Reputational risks stem from the growing awareness and body of evidence showing that forest biomass is far from being a low carbon or even carbon neutral energy source. [...] Reputational risks can translate into financial risks given the high level of dependence of this form of energy on public subsidies. Failure to fully disclose environmental, social and governance (ESG) risks in portfolios exposes financial institutions to regulatory risk."

"Our organisations could find no evidence of any power station, combined heat and power plant or larger biomass heat plant in the world that is reliant on forest biomass and operates without subsidies (including direct subsidies, indirect subsidies paid via electricity bills, and preferential loans from publicly funded or owned bodies)."

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"Several large biomass power projects have resulted in financial losses for operators, despite generous subsidies."

Europe's RED Policy is Built on Burning American Trees

[2019-03-04-vox-europes-renewable-energy-policy-is-built-on-burning-american-trees-english.pdf](#)

This Vox-article discusses how it came to be that Europe's banking on biomass to meet their obligations under the Paris agreement is causing forests to be felled in the US (and elsewhere) and how large scale deployment of biomass for energy is in fact failing to meet any carbon reduction targets at all.

"Several countries, like the United Kingdom, subsidized the biomass industry, creating a sudden market for wood not good enough for the timber industry. By 2014, biomass accounted for 40 percent of the EU's renewable energy, by far the largest source. By 2020, it's projected to make up 60 percent, and the US plans to follow suit."

"Drax powers 10 percent of the British electric grid, in large part thanks to massive government subsidies: about \$1.2 billion a year."

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EASAC Forest Bioenergy BECCS and CO₂ Removal

[2019-02-10-easac-forest-bioenergy-carbon-capture-and-storage-and-carbon-dioxide-removal-english.pdf](#)

As global emissions of carbon dioxide (CO₂) continue to exceed levels compatible with achieving Paris Agreement targets, attention has been focusing on the role of bioenergy as a 'renewable' energy source and its potential for removing CO₂ from the atmosphere when associated with carbon capture and storage (CCS). This new commentary of EASAC updates its findings from 2017/2018, based on peer-reviewed papers and environmental reviews that have been published since then. The overall conclusion is that the use of biomass, even when combined with with carbon capture and storage (BECCS) remains associated with substantial risks and uncertainties, both over its environmental impact and ability to achieve net removal of CO₂ from the atmosphere. The large negative emissions capability given to BECCS in climate scenarios limiting warming to 1.5°C or 2°C is not supported by recent analyses [...]"

"Conditions regarding payback periods have not been included in the revised RED (REDII), and concerns have thus been expressed that if REDII conditions are used as a model for biomass policies in other countries, substituting coal with biomass (e.g. through international trade in wood pellets) could seriously damage carbon stocks in global forests, thereby accelerating rather than slowing global warming"

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Renewable Energy in Europe

[2018-12-17-european-environment-agency-report-renewable-energy-in-europe-english.pdf](#)

This report is commissioned by the European Environment Agency and states the result of subsidies being diverted from real sustainable solutions like wind and solar to the burning of biomass.

"...the annual pace of growth in the EU has stagnated or decreased for most renewable electricity (RES-E) technologies and for renewable heating (RES-H) from solar thermal and heat pumps. It has continued to increase for only a few other renewable energy technologies (i.e. geothermal and solid biomass-based technologies)..."

"...the current average pace of renewable energy deployment across Europe would not enable the EU to achieve the new RES target, of 32 % by 2030. Meeting the more ambitious EU-level RES (and climate mitigation targets) for 2030 and 2050 calls for steeper deployment rates of RES across all sectors and especially in heating and cooling, and in transport (EEA, 2018b)..."

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All Research Papers on Deforestation & Woody Biomass

<https://biomassmurder.org/research/index.html>

We have collected and read all the research reports and official documents from the past decades and have started to make summaries for each subject and published the summaries on the following pages:

[Biomass Research Abbreviations](#)

[Biomass Research Availability](#)

[Biomass Research Biodiversity](#)

[Biomass Research Carbon Dioxide](#)

[Biomass Research Certification](#)

[Biomass Research Ecotoxicity](#)

[Biomass Research Health Risks](#)

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