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Research on Whole Trees Logged for Biomass Production



Spokes people for biomass plants, energy companies & politicians are very eager to state that only branches, topwood and residues are used to create woody biomass for energy plants to hush the public into submission while they cut down your forests and burn them for energy. We have added many official documents and research papers to this website to prove this is false. The lower part of this page contains some of the many videos depicting how they cut down whole trees and shred them for biomass.

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 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,

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](#)

2019-11 \ \ EDSP ECO

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

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

EASAC having concluded that cutting down trees to burn in power stations 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.

"Since 2015, the US environmental NGOs Dogwood Alliance and Natural Resource Defense Council (NRDC) and the Southern Environmental Law Center (SELC) have published detailed on-the-ground investigations which show wood used in Enviva's pellet mills is routinely sourced from clear-cuts of mature hardwood forests in a region designated as a global biodiversity hotspot. These investigations also document that 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."

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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.

"At the end of 2012, Dogwood Alliance published an extensive report that showed that the RWE Essent uses whole trees to annually produce the 750,000 tonnes of wood pellets at the wood pellet factory in Georgia (America), intended for the biomass plants in Europe."

"Mid-2017, NRDC and Dogwood Alliance published an even more extensive study in which they voiced a damning judgment about the Sustainable Biomass Program (SBP) certification program of RWE Essent. The study also cited a recent report from the European Commission that validated NGOs'

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

2019-06 \ \ GOV NL

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

2019-03 \ \ VOX Research

[2019-02-26-rvo-sde-verificatieprotocol-duurzaamheid-vaste-biomassa-voor-energietoepassingen-dutch.pdf](#)

2019-02 \ \ RVO

[2017-03-28-inverde-biomassa-de-verwerking-tot-houtsnippers-en-de-invloed-op-de-kwaliteit-dutch.pdf](#)

2017-03 \ \ Inverde

[2017-03-28-inverde-kwantitatieve-bepaling-van-houtige-biomassa-op-het-terrein-dutch.pdf](#)

2017-03 \ \ Inverde

[2017-03-28-inverde-rekenbladen-voor-houtige-biomassa-dutch.pdf](#)

2017-03 \ \ Inverde

[2014-12-00-bvor-houtchips-als-brandstof-dutch.pdf](#)

2014-12 \ \ BVOR/RVO

[2014-03-03-bvor-warmte-uit-hout-dutch.pdf](#)

2014-03 \ \ BVOR

concerns and concluded that current EU imports of wood pellets from the Southeastern United States came from whole trees and other large-sized wood. The report found that current E.U. imports from the southeast are dominated by wood pellets based on wood pulp (about 60 to 75 percent, mostly softwood) but also hardwood wood pulp."

"The European Commission's report also concluded that most of the wood that was checked did not meet the criteria to ensure a reduction in CO₂ emissions. The same report confirmed that the increasing timber harvest causes direct and immediate losses of carbon stocks compared to the baseline and that additional harvests for wood pellets would degrade carbon stocks in the short term and that the long-term effects were uncertain."

READ MORE

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.

"...Despite the biomass industry's claims that it sources wood "sustainably," on-the-ground investigations by media and independent watchdogs over the past decade have exposed the ecologically damaging logging practices—including the clearcutting of iconic wetland forests—used in the United States to source wood for pellets exported by Enviva, the world's largest wood pellet manufacturer. Significant and troubling evidence shows that biomass headed for the E.U. energy market comes from the logging of mature hardwood forests in places like the U.S. Southeast. The investigations also spotlight the vast quantities of whole trees and other large-diameter wood—biomass feedstocks most damaging to the climate—that are entering the industry's supply chain. Enviva's pellets are shipped to E.U. power companies, such as Drax Power in the United Kingdom and Ørsted in Denmark. These unsustainable sourcing practices not only destroy carbon stocks but also damage biodiversity in the North American Coastal Plain, a region designated as a global biodiversity hot spot...."

[2009-07-11-bosplus-van-wilg-tot-warmte-potenties-van-korte-omloophout-dutch.pdf](#)

2009-07 \ \ BosPlus

ATTENTION!

We are analyzing reports and creating & posting new summaries every day. This is time consuming work but we will try to deliver multiple summaries per day. We are currently processing reports from 2019 and will work our way back into the [hundreds of official research reports commissioned the last decade.](#)

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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.

"TV2's recent biomass investigation exposed highly destructive harvesting practices, affirming several years of documentation by other journalists and NGOs year after year in Ørset's supply chain, including clearcuts of bottomland hardwood forests, lack of replanting, where replanting occurs, a conversion to monoculture plantation forests that absorb 50% less carbon than natural forests, and the clear picture that industry's term of "waste wood" actually means mature trees from natural forests.

"These documented instances of unsustainable biomass sourcing took 17 18 19 place under the industry's voluntary sustainability standards and should result in revocation of biomass subsidies, stringent regulation and legislative phase-out of biomass, as well as a levy on 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.

"The EU's own analyses found that the amounts of residues available are insufficient (or already used in the forestry supply chain) to support the increased demand from large pellet plants, and that stemwood from trees was the dominant source of biomass for US pellet plants. These conclusions on the limited amounts of residues available are consistent with monitoring by environmental groups which have tracked areas of clear-cut forests to pellet mills."

"Indeed, the industry's own feedstock reporting acknowledges the limited contribution of residues (for instance, Enviva's track and trace system reports its sources as 17% residues, with softwoods and hardwoods providing 83%)."

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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 Directive itself anticipates that forest harvesting for energy will continue to expand. Recital 103 states: "Harvesting for energy purposes has increased and is expected to continue to grow, resulting in higher imports of raw materials from third countries as well as an increase of the production of those materials within the Union..."

"...There are several incentives in the Directive that make this increase more likely. For example, Annex IX (paragraphs o-q) includes forest biomass in the category of feedstocks for production of biogas for transport and advanced biofuels count double toward Member States' renewable energy targets..."

"...To the extent that increasing demand for biomass drives additional forest harvesting for fuel and increases use of whole trees cut specifically for fuel, this will increase the carbon impact of bioenergy..."

"...biomass includes products derived from trees, which includes primary products such as stemwood, and secondary products such as waste and residues: "forest biomass' means biomass produced from forestry..."

"...Direct Concerns..."

- The definitions of biomass to include forest biomass, and forest biomass to include stems and stumps (i.e. whole trees)..."

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Proforestation Mitigates Climate Change

[2019-06-11-frontiers-research-proforestation-mitigates-climate-change-and-serves-the-greatest-good-english.pdf](#)

In this paper it is argued, based on multiple studies on carbon sequestration in forests, that proforestation is the best way available to mitigate climate change and prevent loss of biodiversity. Proforestation (growing existing forests intact to their ecological potential) – is a more effective, immediate, and low-cost approach than afforestation and reforestation, and could be mobilized across suitable forests of all types. Forests are already responsible for the largest share of the carbon removal and since technologies for direct CDR from the atmosphere and bioenergy with carbon capture and storage (BECCS) are far from being technologically ready or economically viable (Anderson and Peters, 2016), forests in general, and proforestation in particular, are considered ever more important for mitigating climate change. On top of that they provide unparalleled ecosystem services such as biodiversity enhancement, water and air quality, flood and erosion control, public health benefits, low impact recreation, and scenic beauty.

"A study of 48 undisturbed primary or mature secondary forest plots worldwide found, on average, that the largest 1% of trees [considering all stems ≥ 1 cm in diameter at breast height (DBH)] accounted for half of above ground living biomass."

"Each year a single tree that is 100cm in diameter adds the equivalent

biomass of an entire 10–20cm diameter tree, further underscoring the role of large trees"

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SDE Verification Protocol for Burning Woody Biomass [2019-02-26-rvo-sde-verificatieprotocol-duurzaamheid-vaste-biomassa-voor-energietoepassingen-dutch.pdf](#)

This report was commissioned by the Dutch Government and discusses what kind of woody biomass is eligible for subsidy. It clearly states that 3 out of 4 categories contain whole trees besides the branches, topwood and primary residues.

"..The verification protocol relates to the following categories of solid biomass that are eligible for subsidy

Category 1: Woody biomass from forest management units

This includes branches, topwood, trees and primary residues directly from the forest.

Category 2: Woody biomass from forest management units smaller than 500 hectares

This includes branches, top timber, trees and primary residues directly from forests smaller than 500 ha.

Category 3: Residual flows from nature and landscape management

These are biomass Bucharest products (branches, topwood, trees) that are released during urban greenery management..."

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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.

"..Enormous volumes are taken direct from the forest as whole logs, limbs, tops or stumps. All this, even the whole trees, is defined as residues based on the lesser merchantable value per unit weight or volume when compared to the few high quality saw-logs generated by the same logging operation..."

"..The so called 'residue' stream can often comprise the majority of the product arising from a logging operation. The income generated by high-intensity harvests based on quantity criteria may make more logging operations financially viable, as compared to those operations constrained to take high quality wood alone. In places where the community is struggling to retain natural forests the advent of such a lucrative, incentives-based 'residue' trade can drive further logging incursions and promote clearcutting as a logging method..."

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Sustainable Biomass for the Production of Hydrogen

[2019-06-23-wageningen-university-research-duurzame-biomassa-voor-de-productie-van-waterstof-dutch.pdf](https://www.wageningen-ur.nl/en/research-duurzame-biomassa-voor-de-productie-van-waterstof-dutch.pdf)

This report discusses the burning of woody biomass to generate electricity to be used for the production of hydrogen.

"..In a managed ecosystem, like most forests, harvesting usually takes place, whereby part of the carbon stored in the forest is removed during harvest in the form of trunks, firewood and / or branch and top timber..."

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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](https://www.nrdc.org/sites/default/files/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.

"..Global demand for wood pellets is devastating forest ecosystems in the Southeast United States... Despite the claims of the industry, the independent

reporting shows a disturbing pattern: wood pellets burned by Drax and others come from wood that is harvested from native hardwood forests in an area designated as a global biodiversity hotspot. They also spotlight the vast quantities of whole trees and other large-diameter wood— biomass feedstocks known to be high-carbon..."

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Burning Trees for Power the Truth about Woody Biomass [2019-06-14-southernenvironment-burning-trees-for-power-the-truth-about-woody-biomass-energy-and-wildlife-english.pdf](#)

This report commissioned by Southern Environment states the many and extreme dangers for biodiversity caused by the logging and burning of woody biomass.

"...In 2016, wood pellet exports from the U.S. reached 4.9 million metric tons, tripling the 1.6 million tons exported in 2012. Nearly 85 percent of these exports —approximately 4.1 million metric tons—went to the U.K.⁶ Increasingly high forest harvest levels (7 million green tons in 2016) are needed to support these wood pellet exports to the U.K. According to the U.S. Forest Service, "it is unlikely that biomass requirements for energy would be met through harvest residues and urban wood waste alone. Healthy, whole trees are required to meet this level of wood pellet production..."

"...Supplying the U.K.'s demand for wood pellets in 2016 alone required harvesting approximately 303 square kilometers of forests in the southeastern U.S. At this level of demand, in a little over one year the U.K. will have harvested an area the size of the New Forest in England (376 sq. km,¹⁰ or more than 50,000 Wembley stadiums) for pellet production..."

"...The largest losses of natural forests in the Southeast are forecasted in Florida, South Carolina, and North Carolina (58, 35, and 30 percent loss, respectively). In particular, the region's bottomland hardwood forests, already "reduced to a mere fraction of their original extent," are "now being logged to supply the wood pellet export industry..."

"...Increased demand for woody biomass will continue to exacerbate the pressures facing these forests by incentivizing the harvest of whole trees..."

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Proforestation Mitigates Climate Change

[2019-06-11-frontiers-research-proforestation-mitigates-climate-change-and-serves-the-greatest-good-english.pdf](#)

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"Each year a single tree that is 100cm in diameter adds the equivalent biomass of an entire 10–20cm diameter tree, further underscoring the role of large trees"

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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 former Director Dutch State Forest Management

Firstly, SBB (Dutch state forest management) has fallen back on the logging

method for harvesting wood in combination with tillage, as if trees are an arable crop. Euphemistically, this is also referred to as rejuvenation. The clearing as a method for forest exploitation is an outdated phenomenon: deliberately abolished long ago because of the major disadvantages for the forest ecosystem. It is a national policy that kills around two thousand football pitches per year. Bare cutting leads to a sharp decrease in soil fertility, in biodiversity and in perception value. Moreover, it is climatic because it leads to a substantial increase in CO2 emissions and to the conversion of climate-robust mixed forests into monocultures of mainly pine trees that are vulnerable to climate change..."

*"...Input Prof. Dr. Martijn Katan, biochemicus, Vrije University
Biomass for power plants is often imported from the US in the form of wood pellets. These are largely made from tree trunks: 64% from logs of pine and 12% from hardwood. Wood waste and sawdust hardly play a role, there is too little of it to meet demand. The growing demand for biomass leads to logging of large areas of forest, including primeval forest (hardwood). Will forest owners completely replace trees with new trees? That depends on the competitive destinations for land, expectations about timber prices and subsidies, willingness to invest in long-term, etc. Economic science cannot predict what those forest owners will do. What we do know is that even with 100% replanting it takes 20-100 years for the cuttings to be so large that they have absorbed the CO2 emitted by our power stations. The extra CO2 from biomass therefore remains in the air until 2050 or 2100 and worsens the climate crisis..."*

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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](https://www.vox.com/2019/03/04/20984444/europe-renewable-energy-policy-is-built-on-burning-american-trees-english)

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.

"Europe has been properly encouraging countries such as Indonesia and Brazil to protect their forests," the scientists wrote, "but the message of this directive is 'cut your forests so long as someone burns them for energy."

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The Production of Quality Woodchips for Biomass Burning [2017-03-28-inverde-biomassa-de-verwerking-tot-houtsnippers-en-de-invloed-op-de-kwaliteit-dutch.pdf](#)

This report was commissioned by the Belgian Government to ensure high quality woodchips for biomass burning to produce electricity. It specifically mentions prunes as being undesirable and describes how to process trees for biomass production.

"...Logs, branches and top timber are best kept in the pile or at a central storage location for a longer period of time lie outside the pile so that they can pre-dry. To get a better drying process you can place some worthless trunks at the bottom of the pile... The wood trunks must be in the same direction..."

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Quantitative Provisioning of Woody Biomass [2017-03-28-inverde-kwantitatieve-bepaling-van-houtige-biomassa-op-het-terrein-dutch.pdf](#)

This report was commissioned by the Belgian Government to be able to calculate the quantitative Provisioning of Woody Biomass Logging.

"...The following calculation sheets were developed for this project:

- woody biomass on trunk*
- unchipped woody biomass, for heaps of branches and trunks*
- chipped woody biomass, for heaps of wood chips*
- crownwood..."*

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Calculation Sheets for Woody Biomass [2017-03-28-inverde-rekenbladen-voor-houtige-biomassa-dutch.pdf](#)

This report was commissioned by the Belgian Government to be able to calculate the quantitative Provisioning of Woody Biomass Logging.

..This calculation sheet includes a volume determination of woody biomass on trunk,..The spreadsheet provides a cost-benefit analysis per m³ of harvested woody biomass. From harvesting, rolling out and chipping to charging and transporting to a biomass plant, for woody biomass on trunk.."

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Quality Assurance of Wood as a Fuel

[2014-12-00-bvor-houtchips-als-brandstof-dutch.pdf](#)

This report was commissioned by the Dutch government and intends to prevent mechanical problems, problems with energy efficiency and / or increased emissions due to low quality woodchips. It clearly states whole trees are used to produce good quality woodchips as biomass for biomass burning plants. Prunings are linked to contaminants in wood fuels and are therefor considered as undesirable for biomass.

"..Fresh wood [for biomass production] can consist of whole trees, felling waste, branch and top wood, stumps, round wood, etc. This category also includes wood that is specifically grown for biomass and other applications (for example on a willow plantation).."

"..When talking about contaminants in wood fuels, a distinction is often made macro contaminants and micro contaminants. Macro contaminants are non-wood parts that are chipped...For example, it may concern others organic material released and chipped with prunings (needles, leaves, grassy material)...Macro contaminants mainly have a negative effect on the functioning of the installation, while micro contaminants cause unwanted emissions.."

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Heat from Burning Wood

[2014-03-03-bvor-warmte-uit-hout-dutch.pdf](#)

This report was commissioned by multiple woodlogging companies to determine the most effective method for producing woodchips for burning biomass.

"...Fresh wood [for biomass production] can consist of whole trees, felling waste, branch and top wood, stumps, round wood, etc. This category also includes wood that is specifically grown for biomass and other applications (for example on a willow plantation)..."

"...When talking about contaminants in wood fuels, a distinction is often made macro contaminants and micro contaminants. Macro contaminants are non-wood parts that are chipped...For example, it may concern others organic material released and chipped with prunings (needles, leaves, grassy material)...Macro contaminants mainly have a negative effect on the functioning of the installation, while micro contaminants cause unwanted emissions..."

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From Willow to Heat

[2009-07-11-bosplus-van-wilg-tot-warmte-potenties-van-korte-omloop-hout-dutch.pdf](https://bosplus-van-wilg-tot-warmte-potenties-van-korte-omloop-hout-dutch.pdf)

This report was commissioned by the Belgian Government and discusses the usage of short-lived wood for biomass production to be burned to create electricity.

"...The Forest Decree provides the legal definition of short-lived wood. According to this decree it is about the "cultivation of fast-growing woody crops in which the aboveground biomass periodically grows is harvested in its entirety up to 8 years after planting or after the previous harvest. "Important is that harvesting takes place within 8 years, otherwise one enters a different legal context rightly so: that of the forest..."

"...Short-turn timber is harvested in a cycle of 2 to 4 years. At that time they reach in some fallen heights of 8 to 10 m..."

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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](#)

[Biomass Research Legal](#)

[Biomass Research Lobby Facts](#)

[Biomass Research LULUCF](#)

[Biomass Research Solutions](#)

[Biomass Research Subsidies](#)

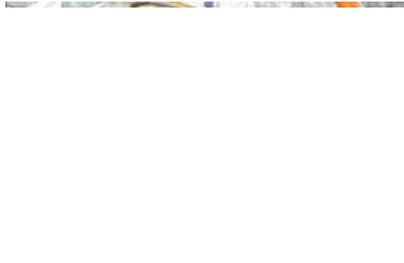
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