

Biomass Sustainability

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Why is Biomass Sustainable?

Sustainable biomass is a renewable fuel

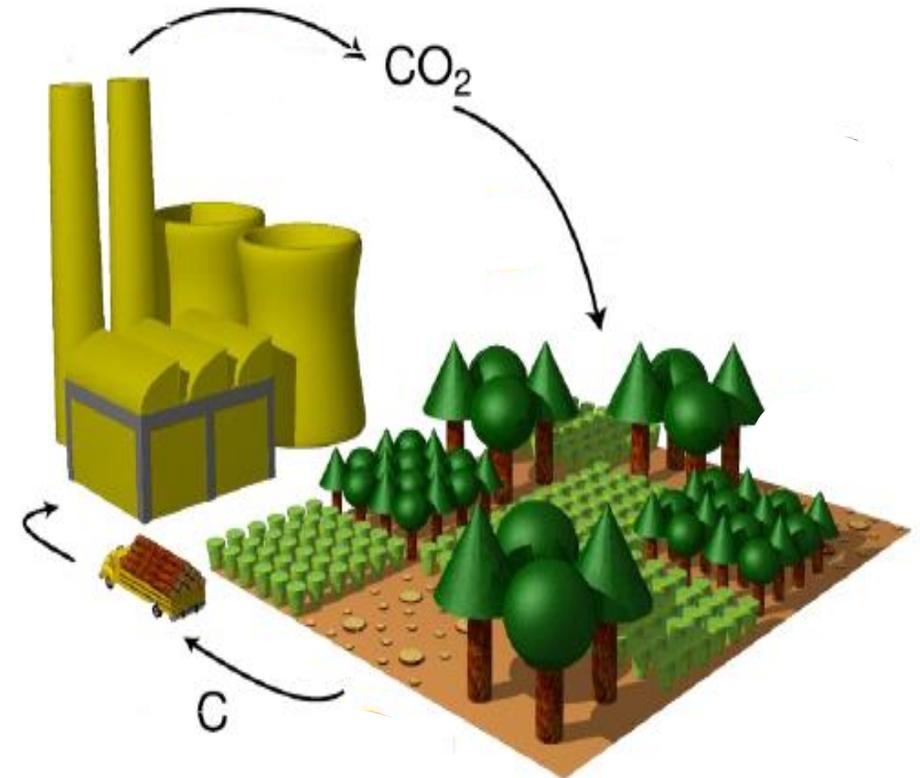
Biomass use contributes to healthy forests:

- We only source from managed forests or where we can help forests stay healthy
- Healthy managed forests support biodiversity
- Healthy managed forests are more productive and absorb more carbon than unmanaged forests

Significant carbon savings relative to coal-fired and gas-fired generation

- Assessment of supply chain emissions are detailed and audited – from the forest to Drax
- Biomass takes carbon out of the atmosphere when growing and returns it when burnt

Biomass Generation carbon life cycle



Biomass is Recognised as Having an Important Role In Climate Change Mitigation Globally and in the UK



“Bioenergy use is substantial in [all] 1.5°C pathways with or without BECCS due to its multiple roles in decarbonizing energy use.”



“Sustainably harvested biomass can play a significant role in meeting long-term climate targets, provided it is prioritised for the most valuable end uses.”

“Our scenarios suggest the UK could access enough sustainable biomass to provide between 5% and 15% of primary energy demand in 2050.”



BEIS public attitudes tracker

“Support for biomass reached a high of 70% in September 2019. This follows a trend of increasing support since September 2015, when 63% supported biomass.”

Managing Sustainability Risk

Strong regulatory framework, internal processes and external certification

Externally

- Strong UK regulatory framework
- EU Renewable Energy Directive II – sets minimum standards
Drax exceeds

Internally

- Annual 3rd party audit of suppliers
- 92% of feedstocks certified by Sustainable Biomass Programme in 2018
- No subsidy withheld on sustainability grounds
- Close monitoring of supply chain and locations
- Close relationship and monitoring of suppliers



Regulator approved scheme

- Demonstrating 100% compliance with regulation

Multi-stakeholder governance with best practice

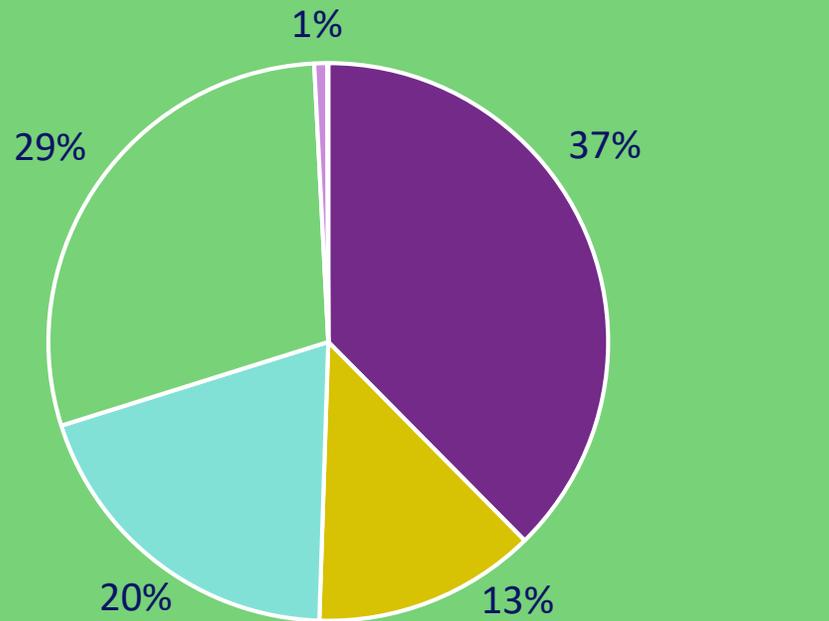
Broad uptake of pellet industry players

- 9mt of SBP-certified pellets
- 65% of the EU-28 pellet consumption
- 200 organisations certified

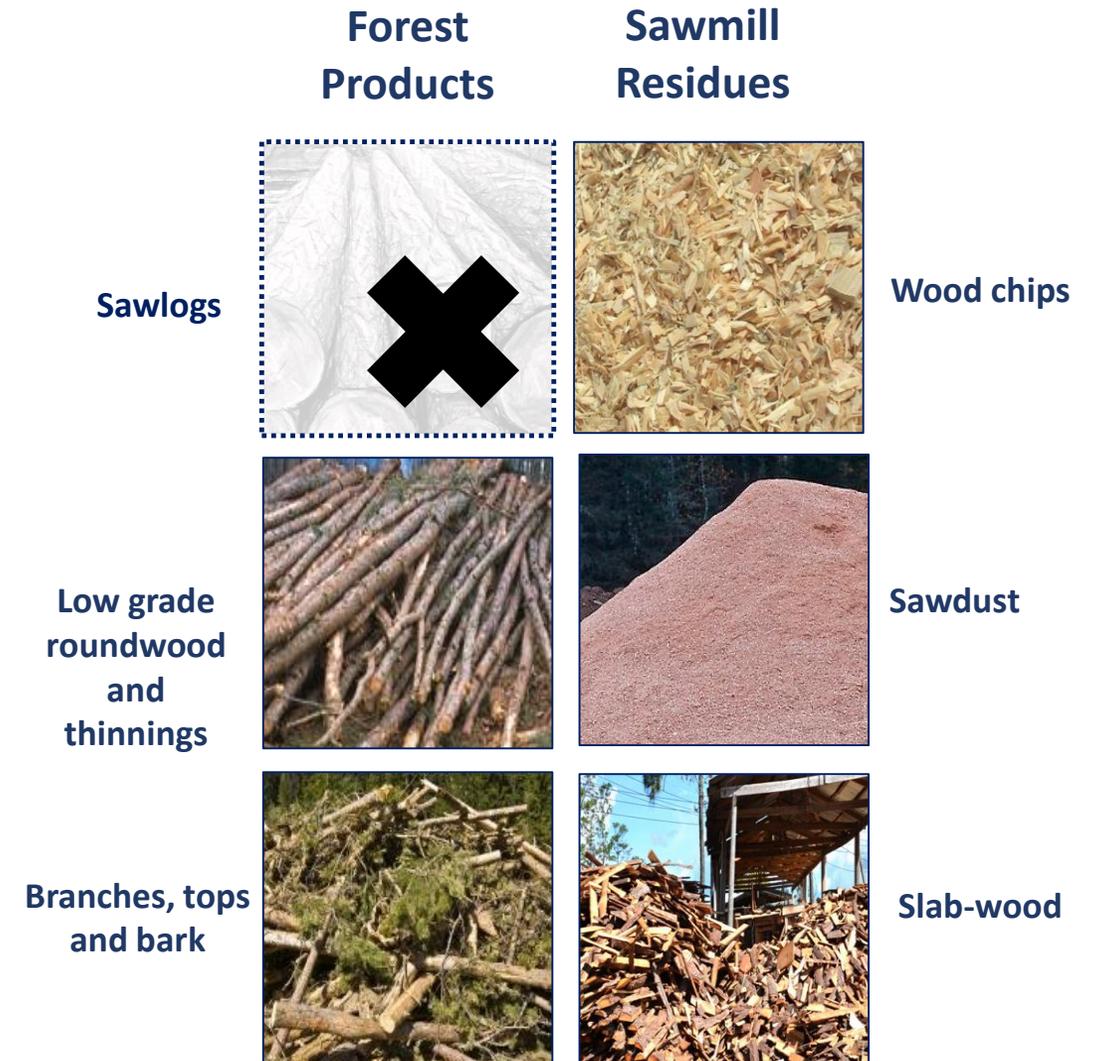
Managing Sustainability Risk

Using residues and wood from forest operations: a managed forest consumes more CO₂ and supports long-term investment in forest stocks

Drax biomass use (2018)



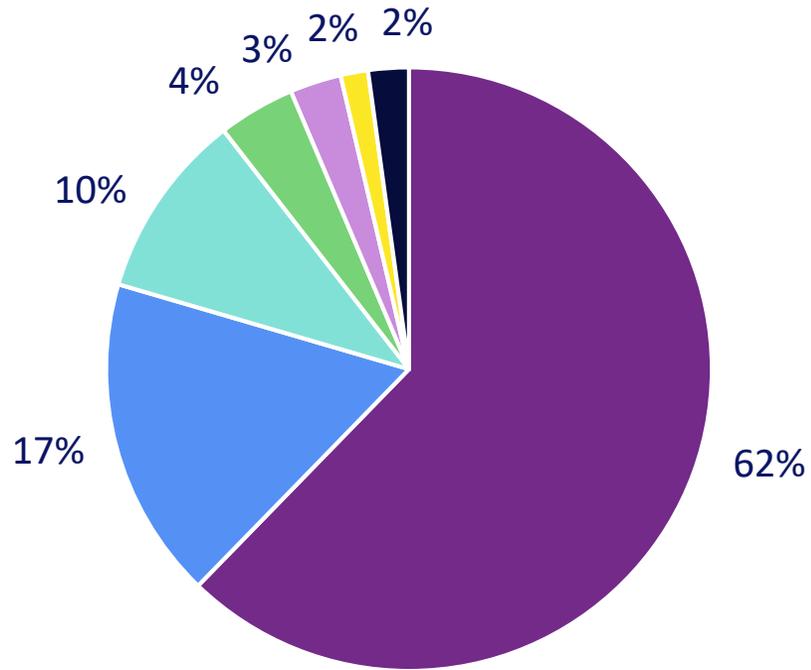
- Sawmill residues
- Branches, tops and bark
- Thinnings
- Low grade roundwood
- Agricultural residues



Managing Sustainability Risk

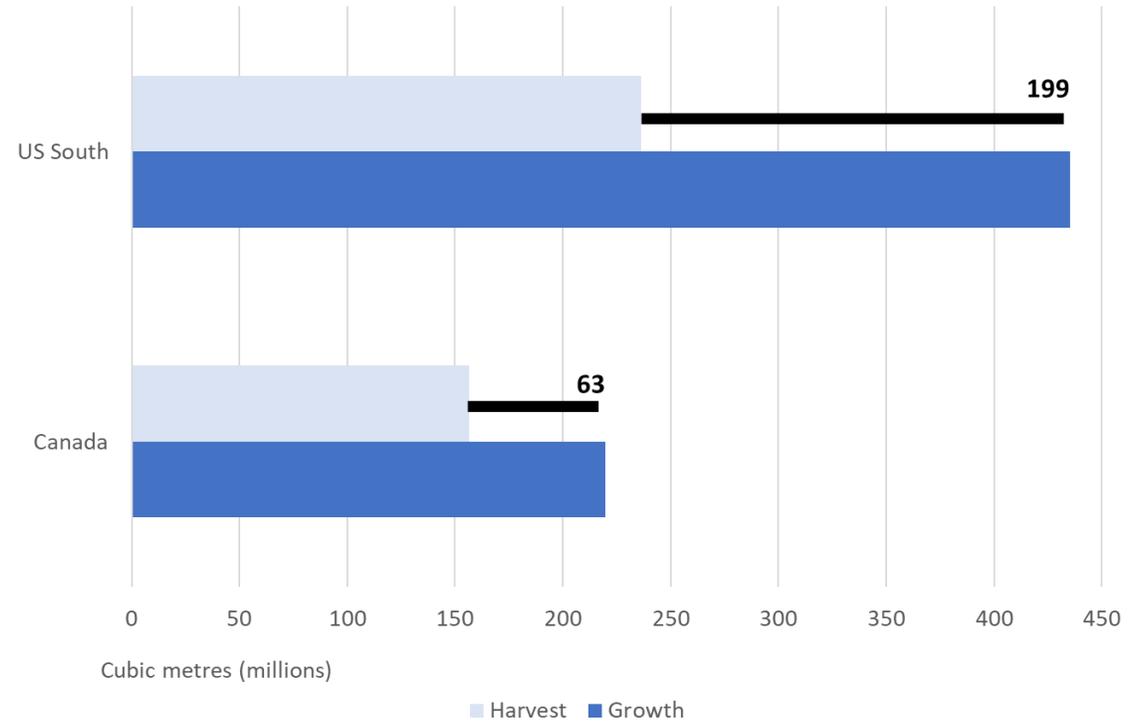
Taking wood from forests that are growing and remain as forests

Drax biomass use (2018)



- USA
- Latvia
- Portugal
- Other European
- Canada
- Estonia
- Brazil

North American Forest Growth



We take from regions with large areas of growing forests and established forest industries

These areas offer us sustainable, economic supplies of biomass

Source: Canada Source: National Forestry Database, 2017 data: <http://nfdp.ccfm.org/en/index.php>

US Source: USFS FIA Database, average annual data, extracted November 2019 <https://apps.fs.usda.gov/Evalidator/evalidator.jsp>

Managing Sustainability Risk

Monitoring greenhouse gas emissions

Compliance with UK regulations requires full carbon foot printing of supply chain

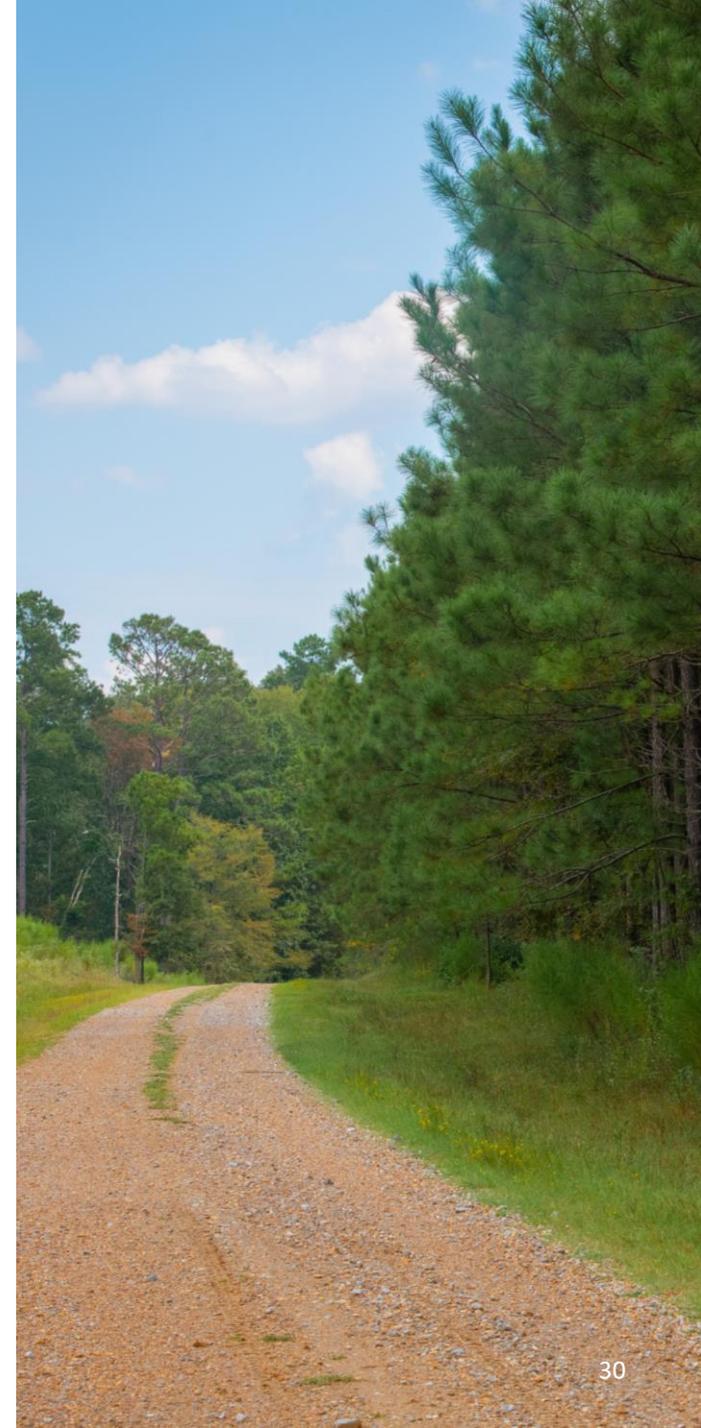
- Biomass supply chain is highly audited

Other energy sources are not required to do this

- Any comparison should take into account the supply chain emissions from other energy sources
- Even with the inequitable comparison, biomass still produces major carbon savings vs. alternatives

Emissions

- Drax Group – 131kgCO_{2e}/MWh – including supply chain emissions
- UK Government biomass target – 285kgCO_{2e}/MWh – including supply chain emissions
- Coal – 870kgCO_{2e}/MWh – excluding supply chain emissions
- Gas – 340kgCO_{2e}/MWh – excluding supply chain emissions



A World Leading Biomass Sustainability Policy

A key component of our integrated approach to ESG

A comprehensive policy that takes into account evolving science, key findings of the Committee on Climate Change bioenergy review and commits to future evolution



Reducing CO₂ emissions



Protecting the natural environment



Supporting people and societies



Research, outreach and intervention

A New Independent Advisory Board

Experts from civil society, academia and forestry certification

Professor Sir John Beddington (Chair)

- Former UK Government Chief Scientific Adviser

Professor Lord John Krebs (Vice Chair)

- Emeritus Professor of Zoology, University of Oxford and crossbench member of the House of Lords

Professor Virginia Dale

- Adjunct Professor, University of Tennessee

Professor Sam Fankhauser

- Director of the LSE Grantham Institute

Elena Schmidt

- Standards Director, Roundtable on Sustainable Biomass

Forest Research (Ex-Officio)

- The UK's primary organisation for forest science



The Board will provide independent advice on

- Role of biomass in climate change mitigation and in supporting the transition to a net zero energy system
- Feedstocks, forest science, and optimising carbon impacts
- Societal expectations for responsible and sustainable biomass

Summary

Sustainability is inherent in all our choices of feedstocks and where they come from

Established, tried and tested systems to meet current regulatory environment

Policy designed to adapt to regulatory requirement

A leadership role in defining sustainable biomass – setting world leading standards in policies and transparency

Engagement with government scientists, policy makers and NGOs – taking a leading role in defining policies



drax

Q&A

19 November 2019