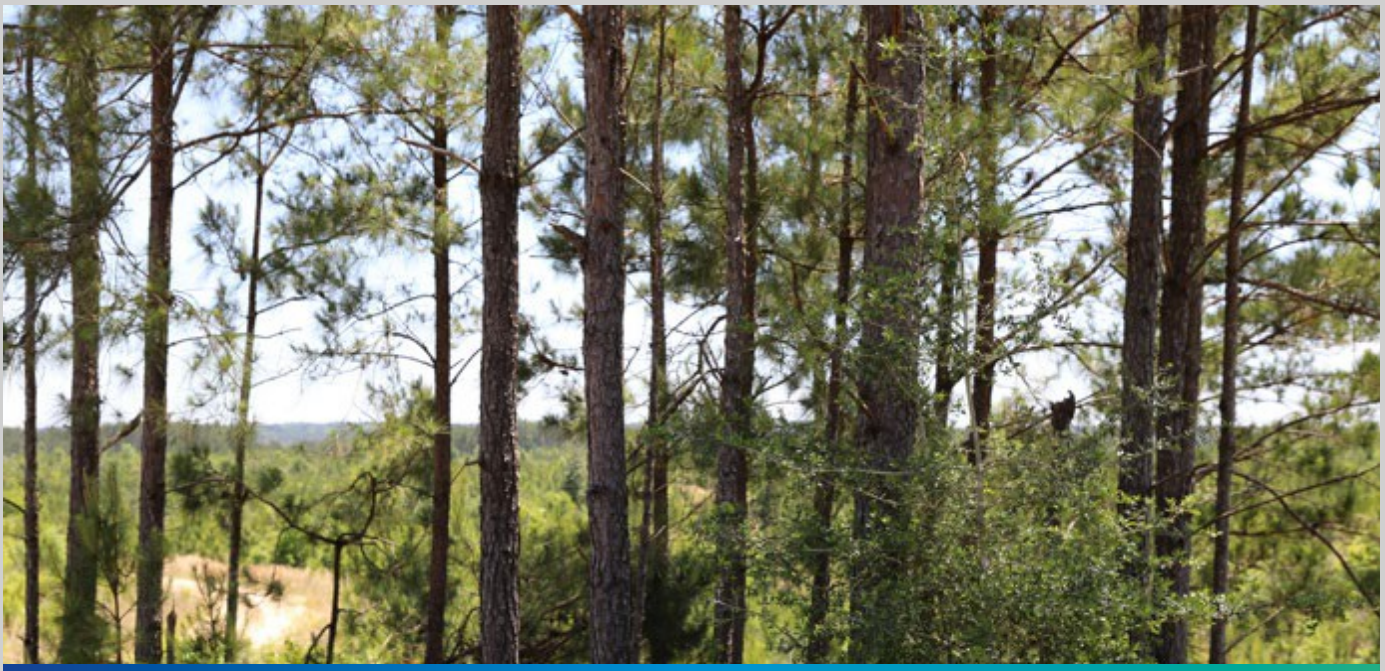
THE 7 PRINCIPLES OF A SUSTAINABLE FOREST BIOMASS POLICY – PROVEN TO WORK

drax



THE 7 PRINCIPLES OF A SUSTAINABLE FOREST BIOMASS POLICY – PROVEN TO WORK

Biomass is a well-established and essential part of the renewable energy mix in the UK, the EU and worldwide. Biomass is unique as it offers a combination of energy security, flexibility and reliability at competitive cost, whilst also helping achieve decarbonisation targets and significant greenhouse gas (GHG) emissions savings when replacing coal or other fossil fuels.

Working forests, such as those that supply biomass, also work for the environment.
By encouraging good forest management practices, working forests can help maintain and grow carbon stocks, protect soil and water quality and safeguard biodiversity. However, in order to properly secure these benefits, it is vital that:

- The biomass used is sustainably produced; avoiding depletion of forest carbon stocks.
- GHG supply chain emissions are minimised, measured and reported to verify the savings achieved.

For these reasons, the use of biomass in the UK is regulated under the EU Timber Regulations (ensuring legality) and the Renewables Obligation (RO), which defines some of the strictest requirements in the world for biomass sustainability, including the protection of sensitive habitats, the maintenance of forest growing stock, and limits to supply chain GHG emissions.

As Europe's largest decarbonisation project, these standards have proven to work effectively for Drax. The right framework in which to demonstrate the sustainability of our biomass sources in Europe and across the world has enabled us to realise significant carbon savings of 86% relative to the coal we would have burnt, while at the same time encouraging the growth of carbon stocks in the areas we source from.

Drax strongly believes there is a need for equally robust EU sustainability standards and a clear investment outlook, based on the principles outlined as follows.

Biomass is unique as it offers a combination of energy security, flexibility and reliability at competitive cost.

PRINCIPLE ONE: FOREST BIOMASS FOR BIOENERGY SHOULD BE SOURCED FROM SUSTAINABLE FORESTS

Working forests, such as those that supply biomass, can benefit the environment by boosting carbon stock, protecting water and soil quality as well as promoting biodiversity.

However, in line with the principles of sustainable forest management, generators should not receive subsidy when the biomass used could cause long-term carbon stock decreases in ecosystems; biodiversity loss; soil erosion; or depletion of water sources. The impacts of feedstock harvesting on soil should be identified and mitigation measures implemented in the field as necessary to minimise the risk of loss of soil vitality due to forest management activities. Robust sustainability compliance schemes allow generators to demonstrate they are avoiding biomass sourced from higher-risk areas.

HOW THIS WORKS IN PRACTICE

Drax can readily demonstrate that we source from sustainably managed and productive, working forests – both long-established plantations and naturally regenerating forests. Evidence shows that the growing stock of the forest areas from which we source is being maintained or increasing – providing assurance that carbon stocks are not depleted and that Drax does not cause deforestation or forest decline.

Drax takes practical steps based on the UK RO to identify 'no go areas' and specify forest types that we do not allow fibre to be sourced from. This means we do not take from protected forests, old growth or primary forest, sites that have been classified as having a high bio-diversity value, or from plantations that have been converted from natural forest since 1 January 2008.

PRINCIPLE TWO: BIOENERGY FROM FOREST BIOMASS SHOULD NOT BE PRODUCED FROM HIGH-RISK FEEDSTOCKS

Some counterfactual scenarios are more likely than others to create a temporary rise in atmospheric carbon. Whilst the global warming potential of temporary rises in atmospheric carbon is strongly influenced by those counterfactuals and is widely debated, there is consensus that the natural carbon cycle will, in time, replace biogenic carbon. It is important to note that counterfactuals which may lead to longer payback periods do not typically occur where the pellet industry sources feedstocks and policy should recognise this.

While policy choices such as diameter caps or restrictions to waste and residues have been advocated as a way of reducing the risk of using unsustainable forest biomass, a robust risk based assessment like that used in the UK has proven to be successful at mitigating risk in a way that is both implementable and beneficial for the environment.

By contrast, a feedstock restriction to waste and residues would discourage long-standing forestry practices such as thinning, which improve the long term health and productivity of the forest, and its capacity to store carbon in living trees and in the products it provides.

HOW THIS WORKS IN PRACTICE

Around 40% of all the **feedstock supplied to Drax** originates as a sawmill residue. The balance of Drax's requirement is made of other material that arises naturally as a by-product of management for high-grade material. Sources include low-value roundwood such as thinnings, and other low-grade wood arising at the time of felling.

The use of roundwood derived from thinning – a process to improve the production of the final sawlog crop – and low- grade roundwood produced as a by-product from sawlog harvesting, are long-standing forestry practices and **very beneficial to the long-term health and productivity of the forest**. Seeking to define and limit the use of roundwood would result in less material recovery, poorer forest management and increased risk of land conversion to other uses.

It is not in the forest owner's interest to degrade the long-term productive potential of their land by recovering excessive amounts of harvest residue. This commercial reality, along with the adherence to SFM principles, protects against excessive forest residue recovery.

Drax notes that certain types of feedstock are not typically used for bioenergy, demonstrating feedstock restrictions are not necessary, for example:

- High-quality, large diameter sawlogs, which would otherwise be used to make furniture, structural timber or other high-value uses where carbon would have been locked up in a final product for many years. These are generally far too expensive for use by the bioenergy industry
- Stumps, where removal raises the risk of detrimental impact on the forest soil and overall carbon stock. These are not suitable for pelletisation

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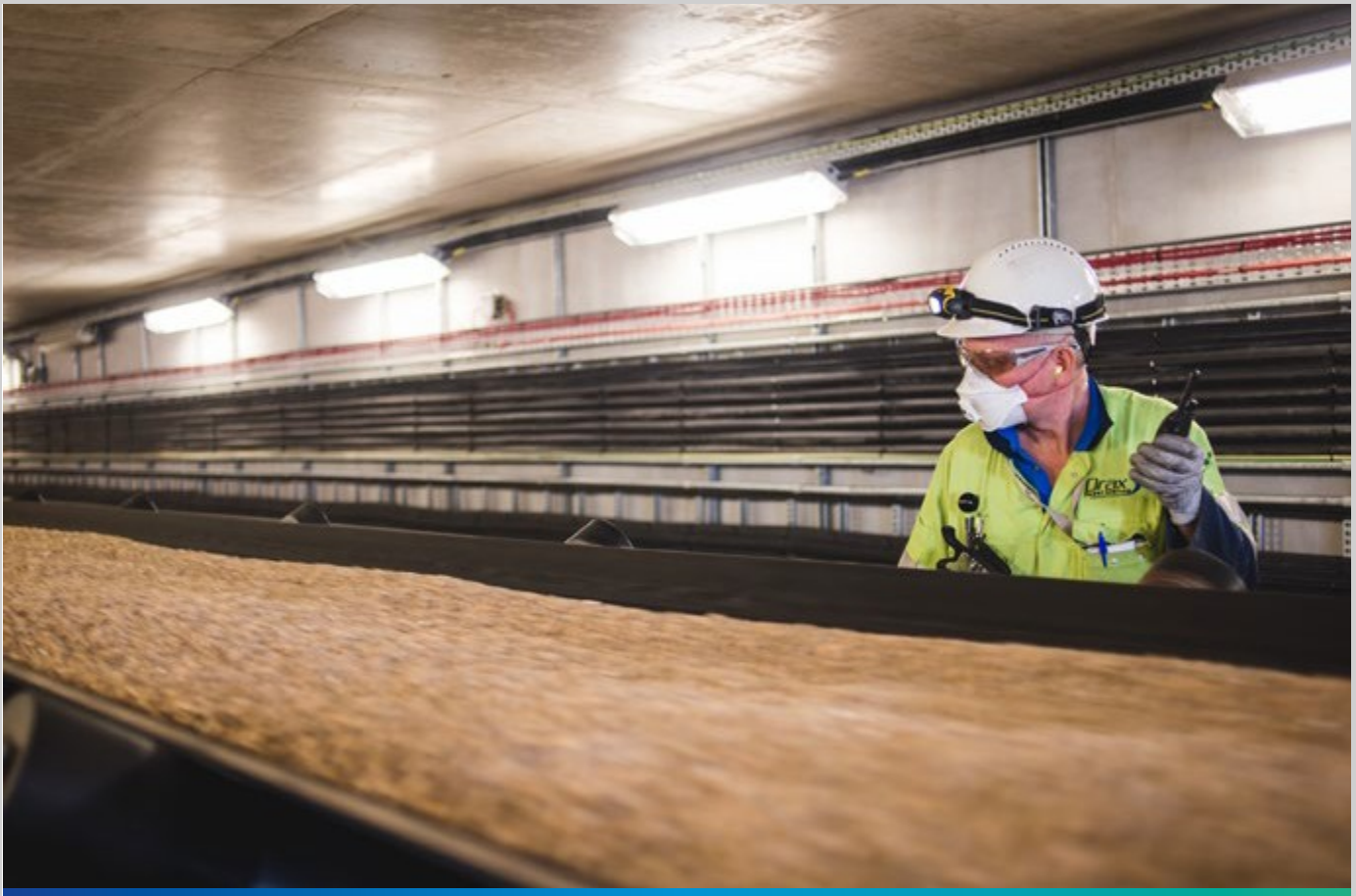


PRINCIPLE THREE: CARBON SAVINGS AND EMISSIONS SHOULD BE PROPERLY ACCOUNTED

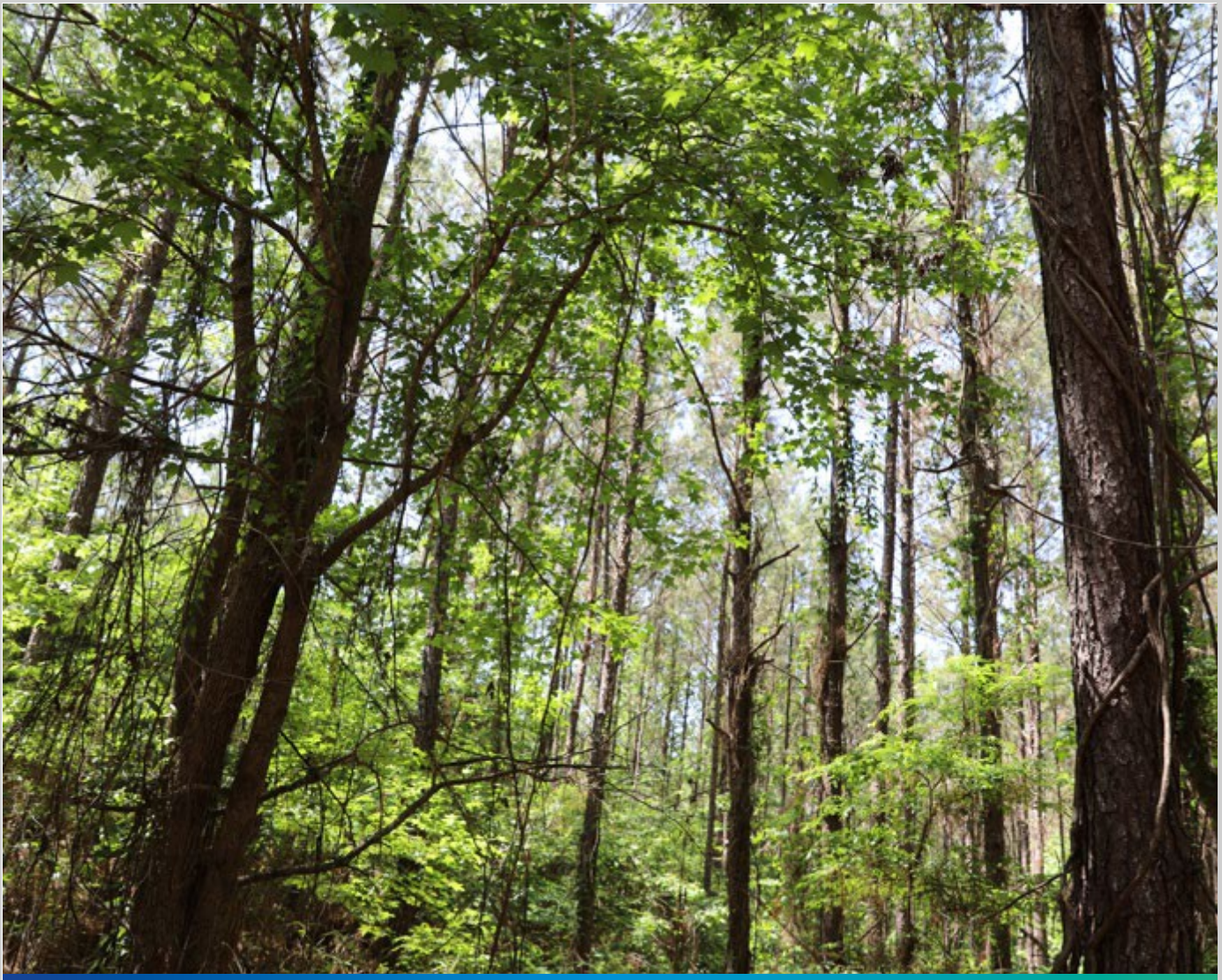
Biomass that receives subsidy should be subject to comprehensive accounting of carbon emissions and savings, including fossil fuel substitution and changes in forest carbon stock. It should also include emissions associated with harvest, processing and transport of the biomass.

Maintenance and growth of forest carbon stock can be monitored using existing mechanisms.

HOW THIS WORKS IN PRACTICE

This is a complex area and different mechanisms are required to account for the different aspects listed above. Fossil fuel substitution is easily measured, as are emissions associated with harvest, processing and transport. Various national sustainability schemes, including the UK's RO, already account for these. The UK regime has strict limits, which are monitored using the UK Government's B2C2 calculator. Thresholds decrease over time to drive continuous improvement.

Maintenance and growth of forest carbon stock can be monitored using existing mechanisms such as **LULUCF** (particularly as redefined by the **proposed amendments to Regulation No. 525/2013**) or public forest inventory analysis. The risk of carbon debt can be assessed through the historic impact that demand for wood has had on forests. In almost all cases, the evidence strongly suggests demand for wood stimulates supply and leads to better carbon outcomes in the near term, when measured across at a landscape scale, and that is the scale that scientists recognise as relevant for this discussion.



PRINCIPLE FOUR: BIOENERGY USE SHOULD BE LIMITED TO WHAT CAN BE SUSTAINABLY SUPPLIED

There is a natural limit to the amount of biomass that is available on the planet, and the resource cannot be considered to be infinite. That is why it is so critical that all wood is from demonstrably sustainable sources. However, bioenergy for large-scale users represents a tiny fraction of the annual harvest in the EU, US or globally, and it is important the sector is considered in this context.

EU policymakers should insist that biomass is sourced from verified sustainably managed forests.

HOW THIS WORKS IN PRACTICE

As suggested in principle one, EU policymakers should insist that biomass is legally and sustainably sourced. This would ensure that biomass is supplied at a rate that forests can sustainably deliver. This provision alone provides appropriate protection from over-exploitation, but also recognises and accommodates the hugely varied international forest market dynamics.

PRINCIPLE FIVE: SUPPORT SHOULD BE GIVEN TO ALL TECHNOLOGIES THAT ACHIEVE SIGNIFICANT CARBON SAVINGS

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Significant carbon savings can be delivered through the conversion of existing coal power stations to biomass. The thermal efficiency of such stations may not be as high as a newly built plant, but they do allow governments to move away from coal quickly, cost-effectively and at scale while maintaining power-grid stability.

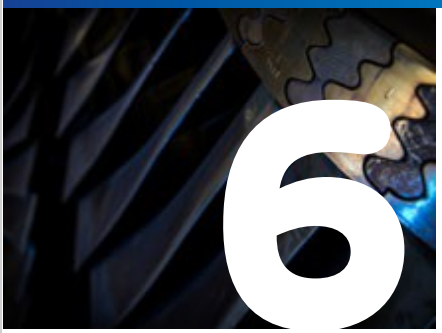
Current grid infrastructure requires flexible, reliable power, to balance and control network performance, which can be provided

HOW THIS WORKS IN PRACTICE

Drax delivers over 86% carbon reductions relative to the coal we would have burnt, and 68% relative to the average emissions from a UK gas power station. This means we are currently able to deliver around 16% of the UK's renewable power and help deliver the UK's global commitments to decarbonisation. There is no shortage of suitable, sustainably grown fuel in the parts of the world we source from, so it would be perverse for the EU to consider obliging the UK to return to burning more fossil fuels than it needs to.

Current grid infrastructure requires flexible, reliable power, to balance and control network performance. Biomass conversion is already providing these essential services, previously delivered by fossil-based thermal generators.

PRINCIPLE SIX: THE EFFICIENT USE OF RAW MATERIALS IS SUPPORTED BY ENCOURAGING BUOYANT FOREST BIOMASS MARKETS



Substantial quantities of forest residues and co-products of forestry currently go unused in many parts of the world, in particular the South-Eastern US, Canada and some Baltic states. It is logical that biomass is sourced from regions where the largest surpluses exist and the forest carbon balance can be maintained. Unreasonable restrictions to trade should therefore be avoided.

Biomass currently plays a uniquely important role in reducing carbon emissions from the power and heat sectors across Europe. In some countries, there are no practical alternatives at scale. However, there may be a time when alternatives to biomass power generation can be deployed at scale or there is a greater need to use biomass in other ways, for example to replace fossil-hydrocarbons in the chemical industries or natural gas in heating applications. It is important that national governments have the flexibility to respond to these challenges in due course – including retention of the ability to place appropriate time limits on renewable subsidies.

The need for flexibility has been recognised by the European Commission, which **undertook an in-depth study into the optimised cascading use of wood**. This study concludes that guidance, rather than legislation, is the best route to achieve the most efficient use of wood given the complex market drivers that underpin the many markets for wood products.

HOW THIS WORKS IN PRACTICE

For Drax, pelletisation allows the safe, cost-efficient and low-carbon transport of fuel from those parts of the world with the highest quantities of un-mobilised wood or unused by-products available. This is beneficial as it does not place pressure on other parts of the world where there are not such large surpluses.

Furthermore, the economics of forestry mean that a natural cascading principle operates whereby the highest value wood is typically used by the sawlog market, which has the highest wood-paying capability. As a general rule, other markets for the next lower grades can pay more for fibre than pellet mills and so there is a strong economic incentive (demonstrated by the actual locations of various mills) for pellet mills to avoid catchment areas where there is strong competition for low-value fibre. In this way, normal economics ensure that effective cascading takes place, with higher-value wood going to high-value industries.

PRINCIPLE SEVEN: THE SUSTAINABILITY OF FOREST BIOMASS SHOULD BE INDEPENDENTLY VERIFIED

Independent verification helps guarantee that biomass is sustainably sourced, both within the EU and in third countries.

Within Europe, biomass should come from forests that are managed in accordance with the principles of sustainable forest management (SFM), as **defined by Forest Europe**. Outside Europe, the forest management principles should at least correspond with these principles. One way to achieve this is by using forest level management certification schemes such as **Forest Stewardship Council® (FSC®)*** and **Programme for the Endorsement of Forest Certification (PEFC)**.

However, the challenge for EU policymakers is to ensure such principles are applied in geographies with a low uptake of forest level certification schemes, such that the principles of Forest Europe can be applied equally within the EU and elsewhere without exceeding the Union's competence, which does not include forestry.

Area-based risk assessment schemes such as the **Sustainable Biomass Program (SBP)**, which uses a supply-base evaluation for a pellet producer, when the supply base is not FSC or PEFC certified, address this challenge by providing the necessary assurance in these locations. Therefore, the EU should place a requirement on users in receipt of subsidy to use either a forest certification or an area-based scheme to demonstrate the sustainability of the forest management in the area from which they source biomass.

To demonstrate sufficient rigour, all voluntary schemes, whether forest certification or area-based risk assessment, should:

- Correspond to well-established principles of Sustainable Forest Management;
- Have accredited certification bodies
- Include stakeholders in the development of criteria;
- Be transparent; and
- Audits should be performed by an independent certification body.

The UK RO provides a blueprint for how such schemes can regulate the larger-scale use of biomass, without attempting to rewrite the rules in third countries or breaching World Trade Organisation rules.

* Drax FSC License code: FSC – C119787

HOW THIS WORKS IN PRACTICE

Drax's own sustainability verification scheme has been in place for several years, using third party auditors to independently verify that the RO criteria are being met on the ground, whether the biomass is sourced within the EU or from third countries.

More recently, the SBP standard (which meets the characteristics described above) has been benchmarked by the UK government as consistent with the requirements for a voluntary scheme that demonstrates compliance with the RO. This standard also includes principles that are specific to bioenergy, such as forest carbon maintenance.

Independent sustainability checks are done on all Drax suppliers before contracts are entered into. Thereafter, sustainability audits containing over 107 detailed checks are carried out on a regular basis. These audits ensure sustainability across the entire supply chain.

DRAX.COM

Drax Group plc
Drax PowerStation
Selby
North Yorkshire
YO8 8PH
T +44 (0)1757 618381