

# Biomass use in the paper sector and the interaction with UK ETS



## Summary

The Paper Industry is based on renewable and recyclable wood-derived fibres; with fibres harvested from forests that regrow as part of a sustainable shallow carbon-cycle. With a limited domestic forest resource, most UK papermaking uses recycled fibre or imported virgin fibre as their raw material. It follows that most of the UK Paper Industry has no preferential access to low-grade forest residues (or waste wood) for energy use. While there will be some additional opportunities for biomass use in local areas, we agree with policymakers that biomass energy is not one of the critical decarbonisation routes for the paper sector, with limited opportunities beyond the existing pattern of use at three main sites – Holmen Workington, UPM Caledonian and Shotton Mill (a short description of these three sites is included at the end of this Paper).

**The use of biomass energy at these three sites is already delivering low carbon manufacturing in the UK.** Support for the major investment required to build biomass-CHP and manage high operational costs is in the form of Renewable Obligation contracts and UK ETS allowances. Without this support, it is likely the sites would have installed lower cost gas-CHP. In the absence of new RO contracts and ETS support, the commercial reality is that a new gas-CHP is likely to be the preferred energy solution.

The reality is that biomass-CHP needs support to be economic in the UK, and in the absence of new RO contracts, ETS must continue to support these investments already delivering low carbon manufacturing. **To avoid competitive distortions, ETS allowances should continue to be granted based on the product benchmark, regardless of the production methodology. Any proposal to exclude from UK ETS installations where biomass is the energy source contradicts the logic of supporting the industrial transition to renewable energy.**

**Biomass use in the UK Paper Sector.** Direct production of pulp from harvested timber is restricted to two UK sites – Holmen in Cumbria and UPM Caledonian in Ayrshire. These sites make (respectively) high-grade packaging materials (frequently used in food contact applications) and lightweight magazine paper. Both sites export a high proportion of their production and so are fully exposed to international competition.

The use of biomass as a primary energy source at these sites is because of their use of low-grade timber

for pulp production (in the case of Shotton Mill now replaced by recycled fibre but the link to local forestry retained). These direct links to UK forestry naturally led to the use of forest residues and process wastes as their energy source (as is generally the case for sites using forest derived materials as a raw material wherever they are located).

The use of biomass at these sites is not generally seen as contentious – the materials are UK derived, low grade and used at high efficiency in Combined Heat & Power plant (CHP). Additionally, harvesting practices meet environmental and legality criteria as part of site operational requirements. Harvesting provides an important stream of income for forest owners and delivers rural employment. Forest sites are subject to management plans, with replanting and long-term management funded by the sale of products, with natural carbon cycles delivering sustainable materials. Indeed, woodlands without active management accumulate biomass, but frequently present a fire risk and a missed opportunity to stimulate new growth and so higher levels of carbon absorption.

Pulp and energy use are outlets for lower grade materials and an important component of overall business planning for forest owners. Carbon from these harvested products is accounted for in the forestry sector by reference to national forest accounting, with such material being assessed as carbon neutral assuming sustainability criteria are met. Research is ongoing into capturing emitted carbon dioxide for permanent storage, or for use as a raw material in the chemical industry supply chain for consumer cleaning products. **So for UK**

**decarbonisation, the use of biomass at these sites is a well-established technology already delivering low carbon manufacturing.**

**Treatment of biomass in ETS.** Under ETS rules (and to protect sites from carbon leakage) energy intensive manufacturing sectors receive free allocations based on product heat benchmarks (BMs - set by the 10% most efficient installations making similar products). These product BMs are used equally across all sites making the relevant product throughout the sector. BMs have been tightened over time, reflecting improvement in process efficiency. It follows that the level of free allocation continues to be reduced as efficiency improves.

All UK paper sector installations using biomass are regulated by UK ETS, and lodge verified annual emission reports. These reports itemise biomass energy use, with biomass energy reported with a zero emissions factor reflecting the sustainability of the biomass and that accounting for this carbon is in the forest and land use sector.

**Free allocation to biomass using sites.** Both the EU and the UK are engaged in reviews of ETS regulation from 2026 onwards. One of the issues considered in the EU review is free allocation to sites using biomass as an energy source, specifically addressing the possibility that windfall profits have been made from these free allocations. CPI does not agree that these free allocations represent a windfall profit, because the price of biomass is indirectly related to the total cost of alternative energy sources (largely gas in the UK). The operational reality is that the value of the ETS allowances is one of the factors integrated into the strategic decision about energy use and routine fiscal operation of the sites. The 'windfall' argument is clearly misinformed as it means that any stream of income (considered in isolation) could be viewed in this way.

With an open trading economy and high UK operational costs, the continued provision of these free allocations is important as a contribution to the economic case to retain these assets in the UK. Accordingly, the existing system should be retained – sites should continue to receive ETS allocations based on the product BM irrespective of the energy source used in their manufacture.

**EU ETS review.** In both UK ETS and EU ETS, there is a review of scheme operation from 2026 onwards. The EU review is essentially complete, while the UK review is phased and still underway.

The EU has decided that installations using more than 95% of biomass will no longer receive free allocations, with the final details still being set. While the UK review is still underway (and a formal consultation is awaited) a review into the principles of free allocation has been signalled.

This 95% EU threshold means that many of the installations importing competing products to the UK (or competing with UK manufactured goods in export markets) will continue to receive free allocations. If the UK does decide to follow the EU lead in reviewing biomass free allocations, then it should not go further than the EU position. Being even more restrictive would impose a further competitive disadvantage on UK sites, adding to the uncertainty already in place about any scheme to replace the existing Renewable Obligation (RO) support as contracts expire over the next few years.

Analysis suggests that without ETS and RO support, the case to continue use of biomass is not attractive in the UK. The installed plant has been designed so that the operational life matches the RO contract timescale, meaning that investment decisions are linked to RO contracts.

**Retaining and securing UK investment.** A prerequisite to secure investment is policy stability – concern that policies can change after an investment has been made are a huge barrier. At an economy wide level, successful decarbonisation needs regulatory stability so that businesses can invest in new technology. Investing in a biomass-CHP is a major decision, and policy changes that result in a stranded asset make future investment less likely.

If the Government were to cancel the allowances for biomass, it would not only affect the three companies concerned but would send the signal that future investments might be rendered uncompetitive overnight by regulatory change.

**Before any changes there should be a full impact assessment.** The Government should be removing political risk from investments and not adding to it by making changes that affect the viability of current, existing investments.

## Mill descriptions

### UPM Caledonian Irvine, North Ayrshire, Scotland

**285 direct jobs, production capacity 260,000t/pa**

The site is an integrated mill, using low grade conifer timber of UK origin to produce lightweight magazine papers, mostly exported. The site has invested in a biomass CHP that produces all the site heat requirements and just over half of its electricity needs. The CHP holds a Renewable Obligation contract that expires in April 2029.

<https://www.upmpaper.com/about-us/our-locations/our-paper-mills/upm-caledonian-paper/>

### Holmen Board Mill Workington, Cumbria, England

**340 direct jobs, production capacity 220,000t/pa**

The Mill is the only UK manufacturer of folding boxboard made from mechanical pulp with an outer layer of bleached chemical pulp. The Incada product family manufactured in Workington is used in packaging for confectionery, cosmetics, wine, spirits, frozen and dried foods, plus greetings cards and covers. The biomass-CHP holds a Renewable Obligation contract that expires in February 2033.

<https://www.holmen.com/en/career/work-for-Holmen/here-is-holmen/workington-storbritannien/workington-mill/>

### Shotton Mill Flint, North Wales

**180 jobs now, 660 additional to be recruited, production capacity planned to be 700,000t/pa recycled packaging, 210,000t/pa tissue**

The mill is currently being rebuilt to change from newsprint production to packaging and tissue grades. The biomass-CHP is retained and expected to serve the new papermaking processes. The CHP holds a Renewable Obligation contract that expires in November 2026. An economic assessment has identified gas-CHP as the realistic solution to deliver the additional energy required by the expanded production capacity.

<https://shottonmillconsultation.co.uk/>

## Further Information

Further information is available from Steve Freeman, Executive Director - Energy and Climate Change [sfreeman@paper.org.uk](mailto:sfreeman@paper.org.uk).

## Confederation of Paper Industries

- The Confederation of Paper Industries (CPI) is the leading trade association representing the UK's Paper-based Industries, comprising paper and board manufacturers and converters, corrugated packaging producers, makers of soft tissue papers, and collectors of paper for recycling.
- CPI represents an industry with an aggregate annual turnover of £11.5 billion, 56,000 employees, which supports a further 93,000 jobs in the wider economy.
- For facts on the UK's Paper-based Industries please visit: [www.paper.org.uk](http://www.paper.org.uk).

REVISED CPI: November 2023