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RENEWABLE RESOURCES & ALTERNATIVE ENERGY

PULP & PAPER PRODUCTS

Industry Sustainability Best Practices

SASB GUIDELINES

PULP & PAPER PRODUCTS

The Pulp & Paper Products industry consists of companies that manufacture a range of wood pulp and paper products, including pulp fiber, paper packaging and sanitary paper, office paper, newsprint, and paper for industrial applications. Companies in the industry typically function as business-to-business entities and may have operations in multiple countries, such as the U.S., Canada, and Brazil . While some integrated companies own or manage timber tracts and are engaged in forest management, sustainability issues arising from these activities are addressed in the below mentioned industry standard.



DIFFERENT SUSTAINABILITY RISKS AND OPPORTUNITIES DIMENSIONS

Greenhouse Gas Emissions

The manufacturing of pulp and paper products generates direct greenhouse gas (GHG) emissions associated with the combustion of fossil fuels and biomass in stationary and mobile engines, cogeneration boilers, and other processing equipment. Companies in this industry also typically use significant amounts of carbon-neutral biomass for their energy needs, the use of which can reduce the costs associated with purchasing fossil fuels, as well as mitigate regulatory risk associated with

carbon emissions. Emissions associated with fossil fuel sources can create regulatory compliance costs, depending on the magnitude of emissions and the prevailing emissions regulations. Companies that cost-effectively manage GHG emissions through greater energy efficiency, the use of alternative fuels, or manufacturing process improvements can benefit from improved operating efficiency and reduced regulatory compliance costs.

Air Quality

Pulp and paper products mills emit air emissions including sulfur oxides, nitrogen oxides, and particulate matter. The sources of emissions include cogeneration fuel boilers, pulp and paper pressure chambers, wood chip pulping, pulping chemical recovery, and process engines. While emissions from the industry have declined considerably in recent years, emissions abatement expenditures can be significant, while evolving air-quality regulations can create regulatory uncertainty. Companies that can cost-effectively reduce air emissions can improve operational efficiency, benefit from a lower cost structure, and mitigate regulatory risk.

Energy Management

Pulp and paper products manufacturing is energy-intensive. In most facilities, energy is derived primarily from the combustion of biomass and fossil fuels, while purchased electricity may also be used in some facilities. Decisions regarding the generation of electricity on-site versus sourcing it from the grid, as well as the use of biomass and other renewable energy, can create trade-offs related to the energy supply's cost and reliability for operations and the extent of the regulatory risk from Scope 1 or other air emissions. The manner in which a company manages its energy efficiency, its reliance on different types of energy

and the associated sustainability risks, and its ability to access alternative energy sources is likely to mitigate impacts of energy cost variability.

Water Management

Pulp and paper products manufacturing is typically a water-intensive process, with water use occurring during in materials processing, process cooling, and steam generation at on-site energy plants. Companies require ample, stable water supplies and may produce large volumes of wastewater, the majority of which is treated and returned to the environment. Process water typically contains dissolved organic compounds and other solids, underscoring the importance of water treatment. In addition to water effluents, water availability is an important consideration for the industry, as water scarcity could result in higher supply costs, supply disruptions, or tension with local water users. Companies can adopt various strategies to address water supply and treatment issues, such as cost-effectively enhancing the recycling of process water, improving production techniques to lower water intensity, and ensuring compliance with water-effluent regulations.

Supply Chain Management

Pulp and paper products companies source wood and wood fiber from forestry management companies, paper fiber recyclers, and forests that the companies themselves manage. Supply-chain risks include decreased productivity of forestlands due to management practices or climate change, regulations addressing sustainable forest management, and reputational impacts. To mitigate such risks and satisfy growing customer demand for sustainably sourced fiber and paper products, manufacturers implement forest certification and fiber chain-of-custody standards which verify that virgin and recycled fiber originate from sustainably managed forests. In addition, pulp and paper manufacturers

face trade-offs from the use of recovered fiber. Products with recycled content are increasingly in demand, providing a possible avenue for product differentiation, while using recycled fiber can minimize the need for virgin fiber. Conversely, manufacturing products with a greater recycled content can increase waste generation and energy consumption, while recycled fiber can be costlier, given demand-supply gaps. Therefore, companies can benefit by optimizing recycled fiber use to balance its environmental and economic trade-offs.