



**Measuring the complex behaviors and trade-offs associated with changes to paper recovery and recovered fiber utilization in paper products based on system-wide interactions that take place within the paper value chain.**

## WHY

Recovering paper for recycling has multiple environmental benefits. Diverting paper from the landfill avoids greenhouse gas emissions that contribute to climate change. In addition, utilizing recovered fiber in products extends the fiber supply and saves landfill space. But the benefits of replacing virgin fiber with recycled fiber in paper products can vary widely, depending on the source and use of those types of fibers. Current research and calculators are limited in that they do not capture the system-wide consequences of replacing virgin fiber with recovered paper. The Dynamic Fiber Flows Model is a new framework, based on published, peer reviewed research that recognizes the complexities and dynamics across the entire paper product system, from fiber sourcing to end-of-life.

## INTERACTIONS

The Dynamic Fiber Flows Model identifies the market interactions associated with paper recovery and utilization, which are based on both the economic and technical characteristics of materials. The model captures decision-making among types, quantities and sources of various grades of fiber consumption to meet their product demand and specification given technological constraints, fiber processing capacity, the availability of fiber grades, and market values.

This new framework consists of two steps: calculating 1) new fiber flows as a result of a change introduced to the pulp and paper industry and 2) energy and GHG emission changes as a consequence of changed fiber consumption pattern through the life-cycle of paper products.

## CASE STUDIES

Because of the complex interactions, the multiple variables at play, and the cascading effects that occur within fiber consumption and production of different paper product categories, AF&PA is presenting the results of the research project in the form of case studies. Each study represents a question, or a scenario related to a potential change of paper recovery or recovered paper utilization. By putting the quantitative results into context, the case studies may be useful to better inform policymakers and corporate decision makers regarding system-wide environmental effects within their supply chains.