Investing in Efficient Energy Generation // UK

"To start with, our old Combined Heat and Power (CHP) plant was outdated and, quite frankly, a bit past it," says Kevin Bussey, Managing Director of our plant in Townsend Hook, South East UK.

"We had it since the '80s, and it was far too big, but selling excess power to the National Grid was typical for that era. We do things more efficiently now." The Townsend Hook Mill produced 226,000 tonnes of paper in 2019, supplying the UK and Irish market and complementing the heavier weight of paper from SK’s 350MW mill. The new CHP plant was part of a major overhaul at the site which replaced two old paper machines with a new one with 17% lower energy consumption. This new machine would make lighter weight paper, more suitable to modern, sustainable needs, and lighter weighted packaging.

A new CHP could similarly produce no more than was needed; 114MW, rather than the overcapacity of the old plant at 109MW. It could also produce both electricity and steam from natural gas, with 85% efficiency.

Energy Efficiency

We cannot achieve our CO2 emission reduction without progress in energy efficiency. From 2006 to 2019, we achieved a 32.9% reduction of relative CO2 emissions compared with 2006.

• SK Townsend Hook, UK, continued to improve its energy efficiency due to the full year with the new, more efficient CHP as well as replacing fresh steam injections by heat recovery. This resulted in 6.9% CO2 savings per produced tonne of paper

• SK Bartosio, Colombia, continued to reduce its CO2 emissions by 4.4% per produced tonne of paper due to its continued improvements in energy efficiency in the paper machine

• SK Los Reyes, Mexico, the paper mill delivered a second full year with its new, 100,000 tonne capacity paper machine and supporting new boiler house, and continued to reduce its CO2 emissions by 1.7% per produced tonne of paper

• Our Austrian and Colombian sites started to purchase all grid electricity with green certificates, resulting in reductions in Scope 2 CO2 emissions.

• The transition of the SK Townsend Hook to the Group reporting after it’s first full year in the Group reported reductions in its CO2 emissions.

• The diversification of our Venezuelan operations also contributed to the overall CO2 emission reductions.
“People talk about recycling, but in Piteå we recycle heat,” says Per Swärd CEO of the Smurfit Kappa Piteå Kraftliner mill in Northern Sweden.

“Many mills are looking into district heating providers, but we’ve been doing it for 42 years.”

As well as producing its own energy in a biomass boiler, the SK mill has two turbines which produce 55% of the mill’s electricity consumption. Even better, the mill has a unique and well-established partnership with the local energy corporation, where excess mill heat is used for district heating. This ensures that the local community uses the mill’s secondary heat, which would otherwise be wasted. The local energy corporation has invested in the plant to make this process more efficient, installing a mill heat-switch and a system to extract waste heat from the recovery boiler chimney.

Piteå has severe winters, and heat from the SK plant supplies 95% of district heating, including 3,800 buildings, three indoor swimming pools and also de-ices the main pedestrian street. The partnership has also been looking into summer uses, and in 2021 will be running a pilot project using the energy to drive a kindergarten’s cooling system. If successful, this solution will be installed in other facilities such as schools and retirement homes, and the plant’s energy can be reused even more efficiently all year round.

In 2018, SK Piteå made the 40-year partnership celebration an opportunity to inform people how it gives back to the community and environment. Historically, the plant’s location has sometimes been a bit unpopular – it’s a large industrial facility right in the middle of a tourist town. It also takes up prime riverfront real estate because originally the mill needed to be on the river for wood transport. The upside of the location is that it enables efficient distribution of district heating, giving sustainable green energy to the community.

The 40-year district heating celebration was a huge success. “There’s a Swedish saying: ‘you can’t become a prophet for your home town,’” says Per Swärd. “But we proved that wrong when our partnership celebration led to us being given Piteå’s 2019 Business Sustainability Award.”

Emmissions from Transport
In 2017, we started a project to consolidate emissions in our transport-related supply chain decisions. This focuses on three improvements: maximising efficiency through payload optimisation and reducing empty mileage; developing a good mix of road, rail and water transport; and using less carbon-intensive fuel technologies. Data management was essential, so in 2018 we piloted all European projects including emission data in logistics decision-making.

This project covers all our European transport emissions – 77% of our business. The transport streams and scope of our reporting are described in the diagram below. In 2017, we started a similar pilot project in Colombia.

In the reported CO2 emissions, we include the transport of wood, recovered paper and market pulp, as well as from transporting intermediate products such as reels of paper, corrugated and solidboard sheets from paper mills to converting plants. In 2019, these were the equivalent of 353,000 tonnes of CO2. We also report CO2 emissions from delivering to customers – all road transport, representing CO2 emissions of 105,000 tonnes. In 2019 the total of these transport-related emissions represented 458,000 tonnes of CO2 equivalent.

Whilst CO2 emission calculation for paper reel transport between our own mills and converting plants is accurate (representing 79% of the total volume), we also have a good estimate for emissions when reels of paper are supplied to our corrugated plants by third parties. While corrugated transport is mainly by road over shorter distances, for all remaining transport we operate a model made of 4% rail, 7% water and 89% road transportation, based on shipped volume.

Our operating companies report transport data annually, and we aggregate this in a database where emission calculation is applied based on default CO2 emission factors from the GLEC reference model (Global Logistics Emissions Council by Smart Freight Centre).

Transport Streams
The transport streams shown with bold arrows represent transports included in the calculations.