THE CO_2 QUEST

Minimising emissions from all print jobs

HOLMEN

BELIEVING IS NOT ENOUGH

We made this guide because we believe in paper for the future – but we also know that believing is not enough. We must all do what we can to minimise our impact on the environment.

As a paper producer, this means taking responsibility for all our processes, setting goals, measuring, and being transparent with emission data and our progress.

Our ambition is to help customers, partners, and the end-users of paper reduce their carbon footprint. Together we can make the use of paper and board a sustainable part of the future.

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Please share this guide with your colleagues, suppliers, or customers, we all need to contribute.

Thank you!
Holmen Board and Paper

MINIMISE YOUR EMISSIONS

Print and paper have got an undeservingly bad reputation when it comes to environmental impact

The truth is that environmental issues have been high on the agenda for half a century in the paper industry, and when companies adhere to strict regulations and standards, they advance their performance greatly within the scrutinized areas.

Research shows that companies working in industries that must conform to a high level of regulation generally perform better on ESG ratings, meaning they work harder than other companies on their environmental, social, and governance processes to ensure continuous improvement.[1]

But of course, regulations are not the reason why we do it. All paper products and printed materials have a carbon footprint, and if the climate impact from our production becomes smaller, the world will benefit. We all know that going digital is not the solution, since the digital industry also has a footprint, sometimes bigger than that of a printed product.

The actions that we have listed here are things you can start doing today, in parallel or as part of your systematic sustainable development program, so why wait?

»There aren't many industries around that can aspire to become genuinely sustainable. The paper industry, however, is one of them.«

Love Paper from Two Sides, https://lovepaper.org/

You can make a big dent in your carbon emissions if you focus your actions within these three areas:

ENERGY

Switch to fossil-free energy and minimize electricity use

TRANSPORTS

Prioritise low emission shipping methods and plan for full loads

SUPPLY CHAIN

Choose suppliers who have control over their carbon emissions

DEFINITIONS OF CONCEPTS

Why is there so much focus on fossil carbon?

To understand the connection between energy sources and climate impact, we need to look at the difference between the biogenic carbon cycle and the fossil carbon cycle.

Biomass is organic, non-fossil material of biological origin. It includes wood and wood waste, agricultural crops, biogas, municipal solid waste and biofuels, according to Eurostat.[2] Biomass can be used for heat production or electricity generation.

> »Buyers are more and more asking for the “carbon footprint” associated with the supply chain for the manufacture, distribution and disposal of products provided to them«
>
> CEPI, Confederation of European Paper Industries

The biomass in forests absorbs carbon dioxide from the atmosphere while growing and releases it when it decomposes or burns. Bioenergy carbon sources therefore count as carbon neutral in a circular system. The emissions are called biogenic CO_2 in line with the IPCC recommendations[3] and they don’t add carbon to the natural cycle.[4]

Fossil fuel combustion (coal, oil, natural gas) on the other hand, increases the total carbon dioxide levels in the atmosphere when used, and the emissions are called fossil CO_2. The fossil CO_2 has been captured in the ground for thousands of years, and when released, it adds carbon that cannot be recaptured within the foreseeable future.

Carbon dioxide is the most common greenhouse gas, but methane, CH_4, and nitrous oxide N_2O, are other greenhouse gases with even larger climate change potential. Therefore, transformation factors based on the climate change potential of methane and nitrous oixide are used to calculate the greenhouse gas emissions, GHG. The emissions are then reported as "mass of carbon dioxide equvalent", in short CO_2e.

ENERGY

Switch to energy from fossil-free sources and minimize energy use

Saving energy is a challenge that is worth taking on, since energy is the dominant contributor to climate change according to UN Agenda 2030 Goal 7. Energy accounts for around 60 percent of total global greenhouse gas emissions, and the share of renewable energy in the global mix must increase substantially.[5] There is a good chance that energy accounts for 60 percent of your products' climate emissions too.

Switch to fossil-free energy sources
Start by looking at the energy sources used in your production, storage, and office facilities. The first easy win is to switch from fossil energy sources to fossil-free energy sources. This way, your energy use will not contribute to releasing more carbon into the atmosphere.

If you have heating or cooling systems based on fossil energy sources, investments may be needed to make a change. There are green alternatives to fossil oil for boilers, but perhaps the most common action would be to switch to electric boilers.

Buy electricity with a guarantee of origin
Depending on the energy mix in your country, the impact can vary. To ensure that you minimize environmental impact from the electricity that you use, switch to buying only renewable electricity with a guarantee of origin.

Increase your energy effiency
But – electricity is expensive, too. The electricity you use will affect both your financial bottom line and our environment, so finding ways to minimize your consumption will be key, and lead to increased profitability. So, initiate and support actions and ideas for energy recovery and ways of increasing energy efficiency in all parts of your organisation.

What to expect in the future?

Learn more about your country's plans and policies for accelerating the development of renewables: **EU on energy efficiency**

The national energy mix for every country in Europe: **Countries and regions IEA**

TRANSPORTS

Prioritize low emission shipping and plan for full loads in your transports

Transport accounts for one-fifth of global CO_2 emissions, with three-quarters of this coming from road transport, according to the IEA. Calculating and reducing emissions from the transportation of materials and finished products is crucial.[6]

Set goals, measure, and follow up your transports
Setting goals and measuring the carbon emission reduction will help put sustainable transportation choices higher up on the agenda. Define your average CO_2 emission per transported tonne-kilometre and year. See how you can develop – by planning for fewer transports, and making transport choices with lower carbon emissions.

What to expect in the future?

The development of low emission transportation options is driven by public policy making, infrastructure and technology subsidies as well as private company joint ventures and end-user market pull effects.

IEA gives recommendations for countries and regions: **IEA on Transports**

»Transport accounts for around one-fifth of global CO_2 emissions. Three quarters of this is from road transport.«

Our world in data, https://ourworldindata.org/co2-emissions-from-transport

Plan orders and deliveries to transport full loads
Make use of your logistics system and maximize space utilization by ordering full truckloads or containers as much as possible. Prioritize reducing mileage and make full use of each vehicle. Buying locally is useful for reducing emissions but being close to a freight hub with access to low impact transport modes, like rail and sea freight, may be just as important.

Prioritize transport types with lower emissions
Try to find transport options with lower emissions, either by changing your transport types, or by switching fuel. Consider using fossil-free fuel where you can, also for internal transports, forklifts, and personal vehicles.

MAKING BETTER TRANSPORT CHOICES

Sea freight
Historically, sea freight has been 99% dependent on oil-based fuels and the sector's use of alternative fuels, including biofuels, hydrogen, ammonia and electricity, will need to increase. Operational measures, such as load and route optimisation will help limit overall energy consumption.

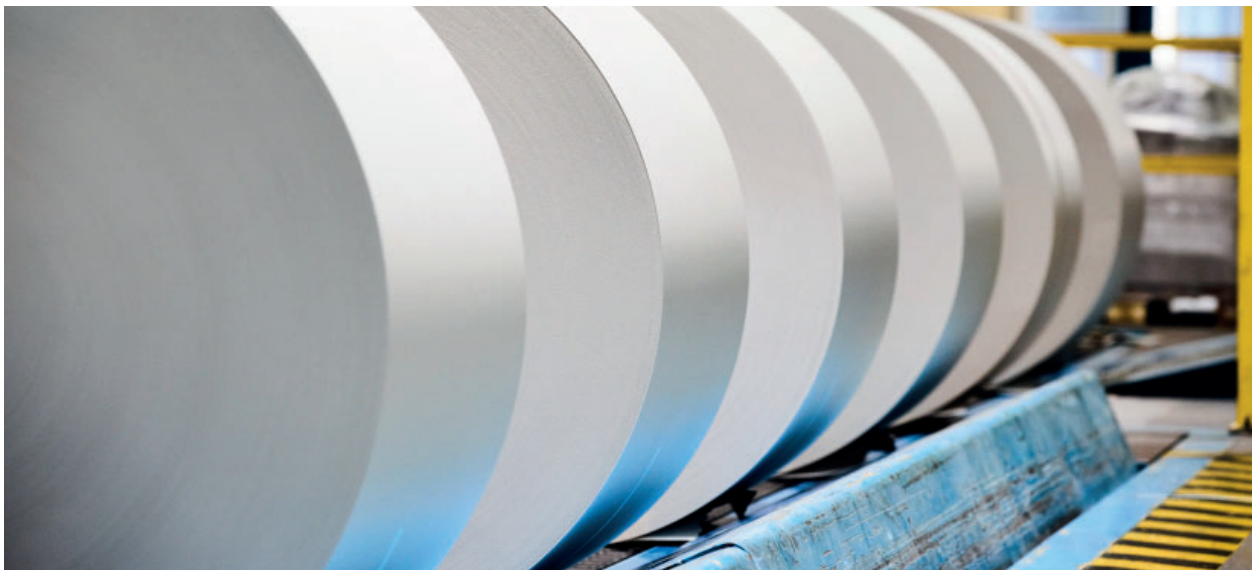
Rail
The low energy use and CO_2 impact of rail transport makes rail a promising strategy for reducing emissions. However, existing infrastructure defines accessible destinations, and to succeed it helps to integrate rail more comprehensively with other mobility services.

Vans and trucks
Tailpipe CO_2 emissions from heavy-duty vehicles have increased rapidly since the year 2000, with trucks accounting for more than 80% of this growth. Vehicle efficiency standards, together with efforts to improve logistics and operational efficiency, are needed to slow growing emissions.

Intermodal
Intermodal transports refer to a combination of rail, sea, and road transport. For instance, goods can be sent by sea from the producer to a transport hub, then onward to the destination by train. The goods can also be loaded in a container for train transport, which is then transferred to a truck for the last leg of the journey.

Electric vehicles
Electric vehicles are a key technology to decarbonise road transport, a sector that accounts for around one-sixth of global emissions. Recent years have seen exponential growth in improved range, model availability and performance.

Air
Aviation accounts for 2% of global emissions and is one of the most challenging sectors to decarbonise. It has grown faster in recent decades than rail, road, or sea freight. Demand restraint solutions may be needed to curb growth in emissions according to the International Energy Agency (IEA).



SUPPLY CHAIN

Choose suppliers that have control over their carbon emissions

Track your upstream value chain

For printed material, the biggest emissions except for energy, are indirect, so called “upstream” emissions, which have occurred earlier in the value chain. In publishing and printing companies, these are often emissions from the production of material that is part of the end product, such as paper, ink, and chemicals, or plastic wrappings and other packaging materials. Paper is perhaps the most noticeable contributor to the end product’s total emissions per printed item; representing 50-80% of the total carbon footprint from a publisher, according to the Book Chain Project.[7] Since all input material and all production equipment come with a carbon impact, what we say about paper here below is worth looking into for your other purchased materials as well.

Use real data in carbon emission calculations

Collaborate with suppliers to ensure that they are in control of their value chain and make sure to get their real carbon emission data. Both you and the industry will benefit from defining the actual data instead of using industry standard calculations – because when larger deliveries come from the suppliers with the lowest emissions on their markets, the industry average will become lower. Many calculation tools have the option to work with general emission standards as the default input. When you make a conscious choice to find and use the real data, this action alone can take you a lot closer to fulfilling your science-based target.

Low carbon footprint and sustainable processes

Did you know that emissions per tonne of paper can vary greatly between mills? The mill with the lowest CO_2e emissions releases 21 times less CO_2e per tonne of paper than the mill with the highest emissions, based on data from the FisherSolve database by Fisher Industries.[8]

By choosing a paper supplier with low CO_2e emissions, you can greatly reduce your carbon footprint from printed materials. Ensure that the data provided by your supplier includes all relevant emissions, including their upstream emissions, so that you use comparable data.

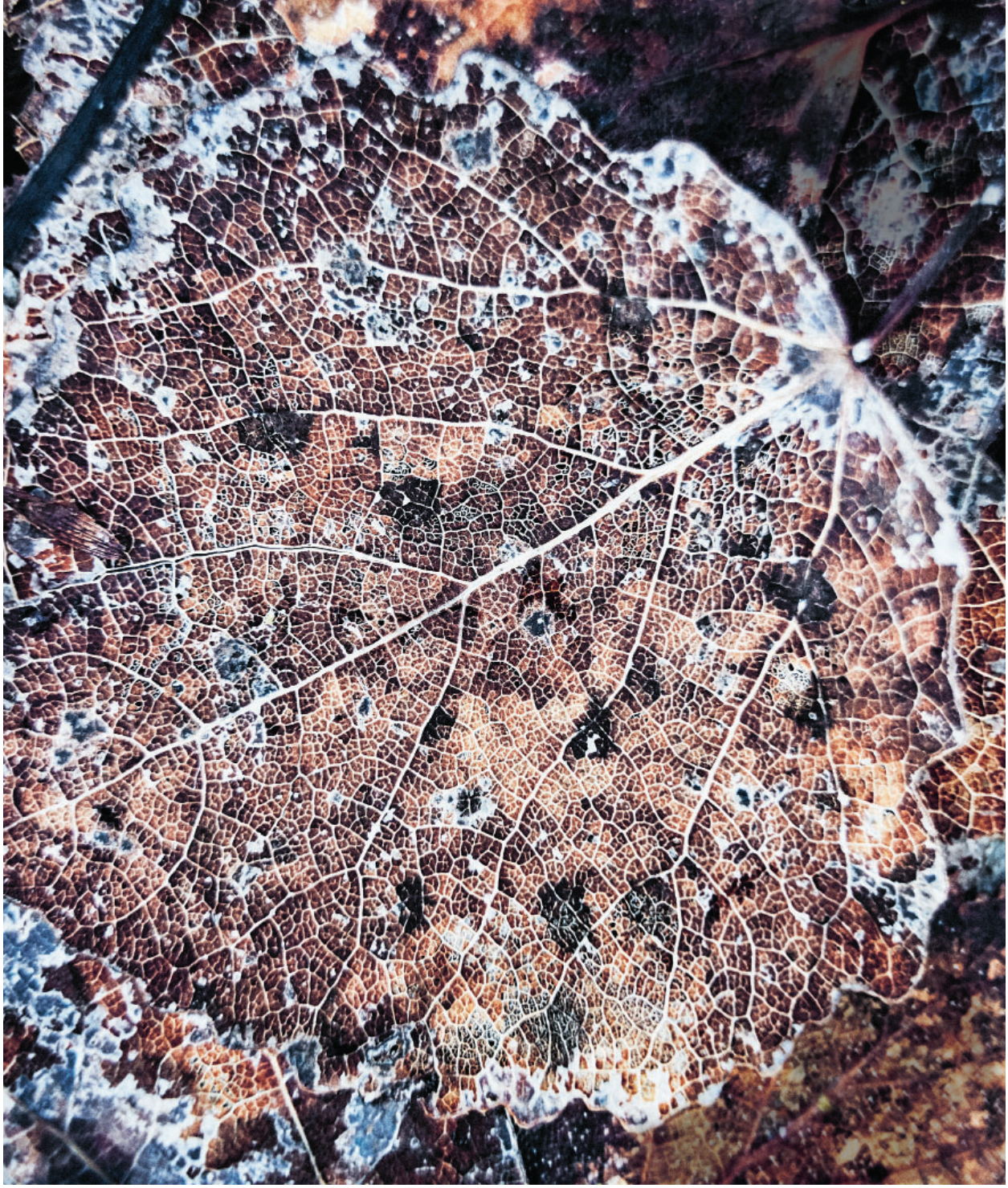
Use paper from sustainably managed forests

Working together with suppliers who take responsibility for their own sourcing through sustainable procurement is important for all input materials. When it comes to paper, sourcing paper from sustainably managed forests is crucial. Sustainable forests recycle carbon from the atmosphere, making them neutral in terms of atmospheric CO_2, CEPI emphasizes.[9] Sustainable forestry ensures new trees are planted for every tree that is harvested while supporting biodiversity.

Learn more

The Book Chain Project provides several resources for working with emissions and environmental impact in the value chain.

Read more: GHG Emissions Calculation: Guidance for the Publishing Industry



To set and fulfil your goals

We recommend that you find a model to calculate and measure the carbon emissions of your products throughout the value chain from cradle to gate. This will help you set goals and see your progress.

Taking responsibility for lowering carbon emissions and working in line with climate targets such as the Science Based Targets initiative (SBTi)[10] is important both for competitiveness and for our future.

Contact us, and let's talk about what we as a paper supplier can do for you.

SOURCES AND REFERENCES

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Further reading

How can a paper supplier contribute to your carbon footprint?

Read more: holmen.com/paper/co2