

Energy transition and decarbonization: risks and opportunities for the P&P sector

If the thawing permafrost is a reserve of viruses and bacteria, humanity might well have to face other pandemics in the future because of global warming. Decarbonizing our societies through energy transition is more than ever a priority. The forest-based industry is definitely doing its part.



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1. Can you share with us some figures for 2020 and over the past decade in your country or region?



AF&PA

About a decade ago, members of the American Forest & Paper Association introduced one of the most comprehensive sets of voluntary sustainability goals for any U.S. industry. These goals continue to demonstrate a commitment to improving the environment. The initiative, known as **Better Practices, Better Planet 2020**, in-

cludes efforts to reduce greenhouse gas (GHG) emissions. Our original GHG goal was to reduce the industry's emissions by at least 15 percent from the 2005 baseline. When members surpassed that goal, we raised the bar, increasing it to 20 percent, which we achieved with a more than **23 percent reduction** based on member data from 2018.



CEPI

The European pulp and paper industry's vision is to decarbonise by 2050 while creating added value to the EU economy. So far, we have walked the talk: **our carbon emissions have fallen by 27% since 2005** while our added value has grown. We are also the largest industrial genera-

tor and user of renewable energy in Europe: biomass from sustainable forest resources currently provides 60% of our overall energy consumption. Another 33.2% is provided by gas, and the remaining 6.8% by other fuels. Furthermore our energy consumption is steadily decreasing, as exemplified by a decrease of 0.7% from 2017 to 2018.



FPAC

Canada is a resource rich country and has the third largest oil reserves in the world. As Canada's transitions to a lower carbon economy and a 'net zero' carbon future by 2050 the future of our energy policy is one of the hottest discussion points in Canadian public policy today.

these two sectors provided \$8 billion in revenue to governments to fund public education, healthcare, and other key government deliverables. Canada's energy consumption breakdown is as follows: 39% crude oil, 35% natural gas, 22% hydro-electric and nuclear, and the remainder being from a growing renewables sector and a coal sector in steep decline.

Canada is the world's fifth-largest producer of natural gas and the sixth-largest producer of oil. These two sectors alone provide over \$100 billion to Canada's GDP (2018) and support over 500,000 family-supporting jobs. In 2017 alone,

Canada produces 3% of the world's renewable energy and has an opportunity to do more with wind, solar, and forest and agricultural bioproducts.



IBA

According to the Ministry of Mines and Energy of Brazil, in 2019:

The Internal Energy Supply accounted for 46.1% of renewable sources in the energy matrix, against a world average of 14.2%. Renewable sources are considered: hydraulics, wood resi-

dues, charcoal, sugar cane derivatives, biodiesel, wind, solar, rice husks, biogas, charcoal gas, etc. The country's electrical matrix has 83% originated from renewable sources. Participation is led by hydroelectric (63.8%), followed by wind (9.3%), biomass and biogas (8.9%) and centralized solar (1.4%). In total, the country has over



170 thousand MW of inspected power in 2019. In this scenario, the sector of cultivated trees stands out, since it is one of the few Brazilian sectors that generates almost all the electricity consumed in its production processes. In 2019, there was a 4.6% increase in electricity generation. 78.8 million gigajoules (GJ) were produced, representing 69% of what the sector consumed. With modern factories, in addition to being self-

sufficient in energy, **the industry generated a surplus of 20.8 million GJ for commercialization to the public network.**

Companies in the sector use almost exclusively by-products of their processes for the generation of thermal and electrical energy. Black liquor from cellulose production and forest biomass represent 69% and 20%, respectively, of all energy produced.

IPMA

Pulp & paper industry in India is very fragmented and most paper mills are quite small in size compared to global standards. Different types of raw material are also used like wood, agro residue (bagasse, wheat straw) and recycled fibre /

recovered paper. And as such for the industry as a whole energy data is not readily available. The specific energy consumption varies significantly depending on the raw material used, amongst other factors.

PAMSA

We have a heavy reliance on fossil fuels for electricity generation and liquid fuels beneficiation. In 2017, 5690Tj of primary energy was supplied, of which 72.6% was from coal and 15.4% from oil. The remaining energy supply was met by natural gas (3.1%), nuclear (2.7%), biofuels and waste (5.8%), wind and solar (0.7%) and hydro (0.1%). Our electricity consumption during 2017 was reportedly 201 929 GWh. More than 90% of elec-

tricity needs are met by national utility Eskom with coal-fired power as the predominant technology and electricity consumption contributing some 87% to the country's GHG emissions. According to our latest GHG Inventory, total emissions increased by 22.8% from 2000 to 2017 with energy's contribution rising from 77% to 79.1%. 559 260 Gg CO₂e (excluding removals from forestry and land activity) was calculated for 2017.



2. What are the ambitions and objectives of your governments and institutions when it comes to CO₂ emissions reduction?

AF&PA

The U.S. government does not have CO₂ emissions reduction requirements. However, our members have taken on an emissions reduction goal as part of AF&PA's sustainability initiative. Our final report on *Better Practices, Better Planet 2020* is due out next year, along with the release of our 2030 sustainability goals. **Our new goals will build on the progress we have made in the last decade**, ensuring the industry remains a

leader in the circular economy. Paper and wood products manufacturers know that continuous innovation and applying new ways of thinking are the path to a more sustainable future. As we look forward, we demonstrate how our industry continues to contribute to the United Nations Sustainable Development Goals and the broader circular economy, interacting with other industries, entities and individuals at all levels of society.





CEPI

The decarbonisation agenda is the cornerstone of the EU Green Deal, which is the political programme of the von der Leyen Commission. **An important part of the Green Deal plan is to reach a climate neutral economy in 2050** by reducing greenhouse gas emissions to net zero by 2050 and making it a legally binding commitment. Consequently, earlier this year, the European Commission proposed a climate neutrality law, currently under negotiations.

Moreover, the European Commission also proposed to set a new emission reduction target of 55% by 2030, as part of the climate neutrality law.

From our industry perspective, the new targets present opportunities (substituting carbon intensive products) and challenges (reducing our residual emissions) at the same time. These are unevenly distributed across national and regional realities.



FPAC

Canada has committed to the Paris Agreement and is embracing **the challenge to move to a net zero carbon economy by 2050**.

It is also developing its Clean Fuel Standard in a move to achieve 30 million tonnes of annual reductions in greenhouse gas emissions by 2030. Canada's move to a lower carbon economy is

further reinforced by its commitment to ban harmful single-use plastics as early as 2021.

As with other countries around the world in the face of the biggest health and economic crisis of our lifetimes, the Canadian government continues to work to advance its green agenda, while considering the impacts of COVID-19 and what needs to be done to spur a much-needed economic recovery.



IBA

The Brazilian National Congress concluded, in 2016, the process of ratifying the Paris Agreement, creating official commitments, the so-called NDCs (Nationally Determined Contribution):

- Reducing greenhouse gas emissions by 37% by 2025 (compared to 2005);
- By 2030 this decrease should be 43%, also in relation to 2005.

The cultivated tree sector has a fundamental role in this regard. First of all because it is also

established that it will be necessary to **restore and reforest 12 million hectares of forests by 2030**, for multiple uses.

The sector has 9 million hectares of trees grown for industrial purposes. At the same time, it has areas destined for the conservation of natural forest of 5.9 million hectares, between Legal Reserve (RL), APP Permanent Preservation Area (APP), High Conservation Value Area (AAVC) and Private Heritage Reserve Natural (RPPN). Together, they have 4.2 billion CO₂ eq. stocked.



IPMA

India has set goals to reduce the emission intensity of the economy by 33-35% by 2030 from the 2005 level, to **increase the share of non-fossil fuels to 40% of the total electricity generation capacity**, and to create an additio-

nal carbon sink of 2.5-3 billion tonnes of CO₂ equivalent through additional forest and tree cover. The Government of India's National Action Plan for Climate Change (NAPCC) has outlined priorities for mitigation and adaptation to

combat climate change through various National Missions.

The Nation Mission for Enhanced Energy Efficiency (NMEEE), a part of NAPCC, aims to

strengthen the market for energy efficiency by creating a conducive regulatory and policy regime by fostering innovative policies and effective market instruments.

PAMSA

South Africa is vulnerable to climate change impacts which is a significant threat to socio-economic development. As party to the UNFCCC and the Paris Agreement, a number of policies and initiatives have been developed to guide a domestic Just Transition and decarbonization.

the electricity supply diversification, promoting renewable energy and other low-carbon technologies.

New renewable energy power producer agreements were signed in 2018 and another bid process is expected before end 2020.

Our first Low Emission Development Strategy has recently been published which plots a low-carbon growth trajectory to 2050, towards our **ultimate ambition of net zero emissions**. However, a carefully implemented transition is required to mitigate risk to economic growth and sustainable development.

The promulgation of Carbon Tax gives effect to the “producer pays principle” and Carbon Budgets set a maximum volume of emissions from certain activities within a set timeframe. However, a range of strategic interventions and structural changes will be required to strengthen the country’s response to climate change through a Just Transition.

Government’s Integrated Resource Plan guides



3. Do you think that producers can be self-motivated to reduce their emissions, or should it be enforced by law?

AF&PA

The paper and wood products industry remains self-motivated to advance on GHG reduction goals. Increasing energy efficiency is also a fundamental energy management objective, and renewable energy sources are at the heart of this

work. AF&PA members meet about two-thirds of their overall energy demand through carbon-neutral biomass. We see this as an example of our results-driven work helping to move the needle forward on sustainability.



CEPI

Climate change is a global challenge and requires actions at all levels of society. Our industry is under carbon reduction regulation since 2005 and is overachieving. This is the result of long-term planning. That’s why it is important that the regulatory framework is stable and predictable.

Otherwise **the regulatory risk would discourage investments**. Moreover, the ability of our sector to decarbonise ultimately depends on the timely and cost-efficient decarbonisation of the European energy system as a whole. As highlighted in our CEOs 2050 initiative www.cepi.org/ceo-initiative-our-contribution-to-eu-2050-climate-neu





trality/, we would urgently need cost-competitive climate-neutral fuels for industry (be it biogas, hydrogen, synthetic gas or others) using existing infrastructures, large-scale roll-out of cost-competitive climate neutral electricity generation and

an effective sector integration, adequately recognising energy system benefits from distributed industrial generation – such as Combined Heat and Power (CHP) facilities where our sector is an industrial leader in Europe.



FPAC

Famous Canadian hockey player Wayne Gretzky once said, “I skate to where the puck is going.” (What’s a Canadian submission without a quick hockey reference!)

The same can be said about how producers in Canada are addressing our energy transition. Whether it’s been environmental improvements to oil sands operations or investment in the forest bioeconomy, Canadian industry has been preparing for the demand shift we are now seeing from consumers.

Since the 1990s, the Canadian pulp and paper

sector has reduced its GHG emissions by nearly 70%. FPAC believes **a mix of smart regulation and a commitment to innovation** will continue to support our transition to a lower carbon economy. One thing we need from our government to get there is **a clear and inclusive strategy**, versus shifting policy frameworks. Canada is the second largest country by land mass in the world, but 38th by population, and we have a colder climate than most countries – these natural factors bring about some unique challenges as we consider energy policy, access, and affordability.



IBA

It is important to point out that the pandemic has brought a new scenario to the world. It accelerated processes that were already underway, such as environmental awareness, especially among young people, who currently require products of correct origin; a new model of doing business, which leaves the predatory culture in the past and promotes a low carbon economy, in fact; and a new relationship between human beings and nature.

In the face of movements in the world that aim to stimulate a post-crisis recovery in a more sustainable way, such as the European Green Deal, decarbonization goals, traceability requi-

rements, among other attitudes, it is possible to say that companies that do not adhere to a model that respect nature, the human being and do not have a governance that reflects diversity, with these rooted values, you will not have longevity in business.

Fortunately, companies in the cultivated tree sector have been working for decades based on pillars such as **respect for nature, generation of shared value with neighboring communities and diversity** in their leadership. All of this means that these values are not temporary, but cultural for each company.

The forest-based sector is moving steadily towards a reality based on ESG, in fact.



IPMA

Ideally, it should be **a mix of both**. Some enforcement by law is essential, while at the same time, producers need to be incentivised to re-

duce their emissions. PAT (Perform Achieve and Trade) Scheme, under NMEEE, is a market-based mechanism to enhance cost effectiveness of



improvements in energy efficiency in energy-intensive large industries through certification of energy savings that can be traded. Large paper mills have been given mandated targets for reduction in specific energy consumption (SEC) in a given PAT cycle of three years.

Similarly, under Renewable Purchase Obligation

(RPO) Scheme, under NAPCC, every consumer of electricity has to source a given percentage of electricity from renewable energy sources (solar and non-solar). PAT seeks to reduce energy consumption and enhance energy efficiency in select industries. REC is an initiative to maximise generation of green power from renewable energy sources.

PAMSA

Our private sector implemented numerous energy efficiency and emissions mitigation measures before regulatory frameworks came into effect. With the increasing pace towards decarbonization, a range of policies and legislation are under development. However, it's essential that the suite of mitigation instruments is aligned to ensure that all stakeholders have a com-

mon vision and approach to the interventions. **The Climate Change Bill was welcomed by industry** and is currently being discussed by relevant stakeholders. This will also strengthen the public-private partnership and facilitate a better understanding of opportunities and constraints to emission reduction. Policy certainty is key to economic investment and development.



4. What kind of initiatives are preferred by your members when implementing low carbon solutions?

AF&PA

Setting and striving for new goals will help keep us motivated to achieve low-carbon solutions in the future. We have long been responsible stewards of our planet, and demand for pulp, paper and wood products ensures that there is value in the forest and keeps forests as forests. I also believe we can do more. Every new day is

a chance to do more with less. Our members do this by **reusing resources, like water, multiple times over, or utilizing manufacturing residuals and byproducts to produce biomass energy.** Setting an ambitious but achievable goal and working toward it each day is helping us improve tomorrow's environment today.



CEPI

First and foremost, pulp and paper industry companies look at reducing their fossil fuel emissions by **investing in energy efficiency.** Secondly, they look into primary energy savings by deploying **innovative renewable energy** generation on-site. Thirdly, they are working in partnership with stakeholders in the "energy value-chain" and in cross-sectorial platforms, to look for **"outside of the box" solutions,** tapping into expertise

outside of the industry's core competences. Finally, they look for **breakthrough technologies** in further reducing other emissions to water and air towards the Zero Emission objective and tap into industrial symbiosis to extract valuable resources in those emissions; advance further in circularity of water management starting from being pioneers in water stewardship and already having high rates of water recycling.





FPAC

Canada's forest sector sees significant opportunity in the growing forest bioeconomy. In 2018, Canada's federal and provincial forest ministers came together to launch the Forest Bioeconomy Framework – a blueprint for the future of Canada's forest resources and bioproducts.

In addition to this framework, Canada's forest sector views the development of a Clean Fuel Standard to be an opportunity to lower GHG

emissions by **increasing the use of forest biomass** in our fuel supply. In Canada, transportation systems account for 34% of our energy usage and are an important focal point for reductions. We also see the opportunity to build more with wood in the built environment to move away from more carbon-intensive materials like cement and concrete and are seeing moves across federal, provincial, and municipal governments to advance this agenda.



IBA

It is a constant objective of this sector to **do more with less**. The cultivation of trees for industrial purposes is usually carried out in areas previously degraded by human action and the sector has been working on increasing its productivity on the land it already owns, which is already one of the largest in the world: an average of 35.3 m³ / ha for eucalyptus and 31.3 m³ / ha for Pinus. In fact, 100% of Brazilian pulp and paper come from trees grown for industrial purposes. The companies are in states such as Rio Grande do Sul, Santa Catarina, Paraná, São Paulo, Espírito Santo, Minas Gerais, Bahia and Mato Grosso do Sul.

It is worth mentioning that the area of cultivated forests represents just over 1% of the national territory, with 9 million hectares.

Allied to this, 5.9 million hectares are destined for **conservation areas of natural forest**. All of this means an area larger than Belgium, Denmark or Switzerland, for example.

Together, these conservation and production areas stock about 4.48 billion CO₂ eq., one of the main greenhouse gases. This sum is greater than the entire emission of the Brazilian industry in one year.

Globally recognized certifications attest to the correct handling of these areas for more than two decades. The recognitions come from the Forest Stewardship Council (FSC), Program for the Endorsement of Forest Certification (PEFC)

and the International Organization for Standardization (ISO). Altogether, 7.4 million hectares are currently certified.

The manufacturing process also invests in caring for the environment. In terms of energy, about 90% of the factories are self-sufficient, based on clean energy, coming from forest biomass and residues from the manufacturing process.

The industry is also working to reduce water use. Since 1970, the use of water resources has fallen by 70% the use of the resource and the sector continues to search for more solutions that further reduce water use.

The result of this all translates into a recyclable, reusable and, in most cases, biodegradable material.

Looking ahead, technology and science are making the Brazilian forest-based industry take years ahead of its time. There are several new uses from the cultivated tree.

Some examples are: microfibrillated cellulose, a cellulose broken down into smaller particles, will give rise to textile threads using up to 90% less water and less chemicals than polyester. Nanocrystalline cellulose will replace materials of fossil origin in cell phone screens, for example. Lignin, until then called a by-product, will gain added value and may compose conventional thermoplastics, used in internal parts of automobiles, which will provide greater recyclability.

IPMA

Paper industry is an energy intensive sector and paper mills in India have been working towards better energy efficiency, employing a range of innovations and technologies. The largest 30-35 paper mills are covered under the PAT Scheme. All paper mills are covered under the RPO Scheme. The entire residual biomass after extraction of pulp fibre from wood, is used by paper mills to generate steam and power. **Paper mills are genera-**

ting renewable energy from biomass to the tune of 20-60% of their total electricity consumption.

India's paper industry has strong agroforestry roots and through its efforts, about 125,000 hectares are being brought under agro / farm forestry on an annual basis, with around 1.2 million hectares on a cumulative basis across the country. About 58% of the total production of paper in India is manufactured from recovered paper.



PAMSA

Our Forestry Industry plays an important role in the Just Transition pathway with various value chain opportunities to contribute to decarbonization.

Our sustainably managed plantations provide timber for harvested wood products, which increases sequestered and stored carbon. We want to expand the application of harvested wood products through **product substitution and further bioeconomy research.** Our fibre voluntary paper recovery programme has been

successfully operating for 17 years, and in 2019, a 68.5% recovery rate was achieved, exceeding the international average. With the introduction of extended producer responsibility regulations, additional interventions are planned to expand **waste minimization mechanisms** and the range of recovered and recycled products.

Although energy production from biomass is only about 6% nationally, **pulp and paper manufacturers already produce about 50% of their energy requirements from biomass** and intend to expand this technology.



5. Would you be in favor of taxes at the entrance of your country/region on P&P products manufactured in countries that would not or little respect the decarbonization objectives that you support?

AF&PA

AF&PA advocates for **open international markets.** In the event the United States introduces a carbon tax, as an energy-intensive, trade-ex-

posed industry, our industry would consider the implications of carbon border adjustable measures to ensure that the industry is able to maintain its international competitiveness.



CEPI

The European pulp and paper industry has always promoted **free trade and fair competition** as well as sustainability as a key principle. And the pulp and paper industry is and has always been among the sectors

identified as at most risk of carbon leakage. So in a context in which the EU has already the most stringent carbon reduction target in the world and is planning to further tightening it for 2030 and beyond, it is indeed fair to expect that -





if foreign competitors don't adopt the same level of decarbonisation ambition - **some measures have to be adopted** to accompany the European industry along its decarbonisation journey and the substantial investments it entails.

To avoid undue competition from countries with less stringent carbon reduction policies, we would need a basket of solutions that, inter alia, would include: strengthening of current provisions against the risk of carbon leakage, decarbonisation programmes supporting low-carbon investments in industry, strengthening of European industrial value-chains, policies promoting low-carbon and sustainable products

The EU Commission has been very vague about details but is expected to put forward a proposal in 2021 for a carbon border adjustment mechanism. **But it is not a silver bullet and currently we do not see it fit for our sector.** It should not be the only measure as it won't probably address all the challenges an industry sector like the pulp and paper industry might have, with the complexity of its supply chain, the need to secure the competitiveness of its exports, the compliance with WTO competition rules, etc. Complementary measures in a number of policy areas have to be identified to level the playing field and secure that EU manufacturing products and imported products are treated the same way.



FPAC

Canada is a free trading nation and the answer to this question would really be incumbent upon current trade agreements with the trading partners in question. That said, **fairness and equity is very important.**

Our position would simply be if Canadian requirements and standards hold Canadian companies

to certain commitments, we would expect trading partners to be held to the same account to ensure a level playing field.

The issue and risk of 'carbon leakage' is very real and at the forefront of the minds of many in Canadian industry on this topic of GHG reductions.

IBA

I believe that the search for a green economy and conservation of the environment is something of interest to everyone. Therefore, logically, everyone should start from correct operations and businesses from the socio-environmental point of view. However, it is a fact that there are those, a minority, who go in the opposite direction and look for an immediate profit, not measuring its long-term consequences.

The movement I see gaining speed, fueled by the pandemic scenario, is a more demanding consumer, especially among young people. If some few decades ago the utopia was social, today it is environmental. And the consumer dictates the rules. As a consequence, awareness and green investment in the business sector grows.

A very clear example is traceability, which al-



allows us to know the origin of the product and whether the chain it has passed meets environmental quality standards. The companies themselves are making this demand, as consumers ask for it.

On the issue of carbon, I believe that we must address a solution based on Article 6 of the Paris Agreement, which provides for **the creation of regulations at the international level**. Thus, countries and companies would be able to negotiate emissions between themselves. It is also essential that there is a fair transition from the current system (Clean Development Mechanism) to the new one in Article 6. We cannot lose the efforts already made. In Brazil, we are inter-

nally advocating that the sale of carbon credits be adopted and regulated nationally.

Therefore, I believe that there are **mechanisms that encourage the market to adopt a sustainable model**. This way, any type of protectionism is also avoided. In this globalized world in which we live, I think that the best thing for everyone's future is to encourage dialogue, collaboration, exchange of experiences, continuous and progressive use of technology and healthy competitiveness. In this way, we will have more social actors with a sustainable footprint, not because of the fear of being charged, but because of the stimulus to gain market and contribute to the planet.

IPMA

While, in principle, we are **in favour of taxes imposed on imports coming in from countries**

which do not have decarbonization objectives, but this cannot be done overnight and has to be thought through extensively.

PAMSA

Discussions are ongoing about the possibility of carbon border tax by the EU and we recognize the potential impact that this will have on our economy and international trading. Through the development and implementation of a clear pathway towards a lower carbon economy, South Africa is committed to reaching net zero emissions. We will require green financing and international support to phase in the interventions.

The international trading environment is com-

plex and dynamic and any additional conditions imposed on trading partners may result in the migration of carbon-intensive supply chains to countries that do not have decarbonization policies. This will disadvantage manufacturers that are required to comply with stricter environmental legislation and may result in imported products that are cheaper to manufacture. **A carbon tax border tax to level the playing field** would be one instrument to mitigate job losses in South Africa as it transitions to a green economy.

