

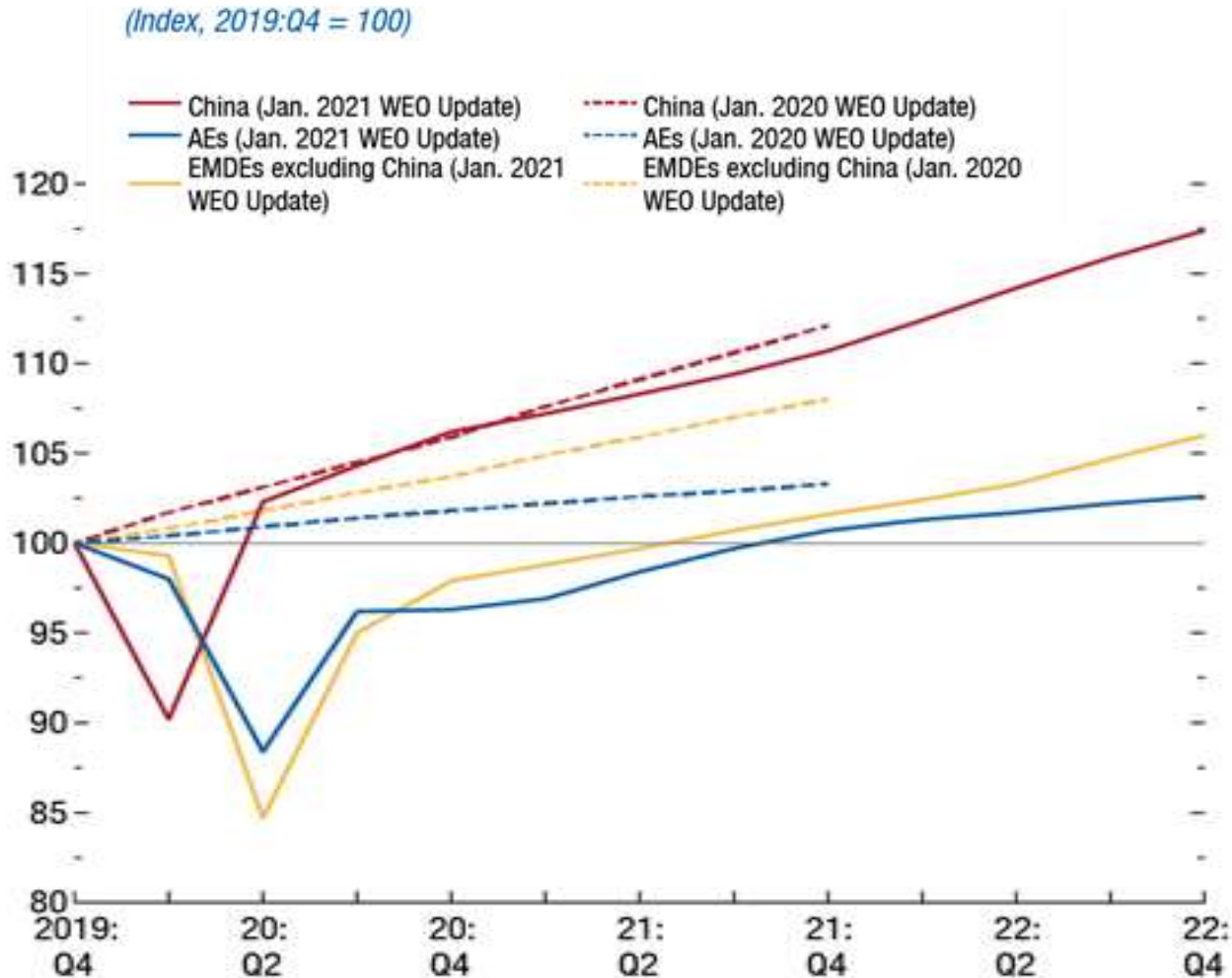
Global Scan of Forest Product Markets & the Emerging Bio-Economy – with a Nod to COVID



**Don Roberts
CEO, Nawitka Capital Advisors Ltd.**

**MegaFlorestais Working Group
February 2021**

Divergent Recoveries: IMF's Forecast for Advanced Economies & Emerging Market and Developing Economies



The chart compares the IMF's economic forecasts in January 2020 (dotted lines) and 2021 (solid lines)

COVID had a dramatic impact on GDP throughout the world. Triggered some of the deepest recessions in history, and especially in the developing economies.

There are large differences in the expected economic recoveries. China has already fully rebounded and is tracking its previous growth forecasts.

The Advanced Economies and Developing Economies (excluding China) likely won't recover to pre-COVID output until late 2021.

The impact of COVID has been consistently greater for poorer people in all countries.

• Source: International Monetary Fund (IMF) staff estimate of World Economic Output (WEO)s

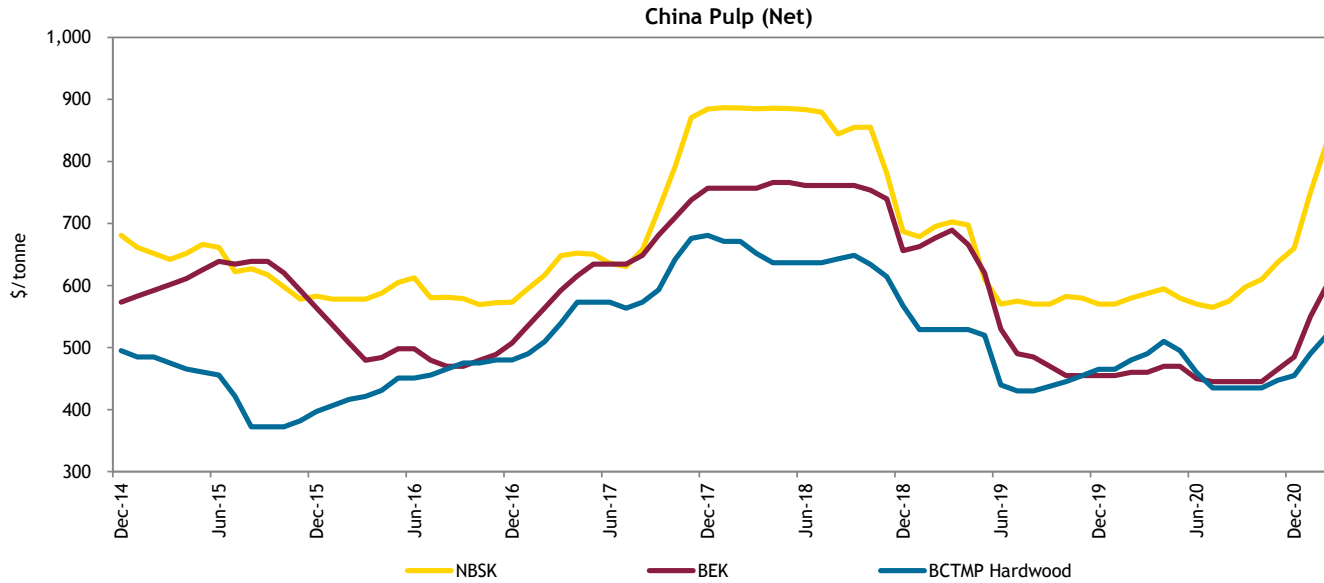


IMPACT OF COVID ON FOREST PRODUCT MARKETS?

- The initial impact of COVID in the first part of 2020 was dramatic as supply chains and trade collapsed in many forest product markets. This was in response to lockdowns, business closures and production stoppages.
- Many governments around the world have responded with massive monetary and fiscal stimulus to the economy.
- Forest product markets generally rebounded quickly, and the industrialized forest sector as a whole has fared better than many other sectors.
- Prices summarize a great deal of information affecting both the supply and demand side of markets. What have prices in key forest product markets been saying?



Market Pulp: Prices Are On The Rise, And Approaching Historical Peaks



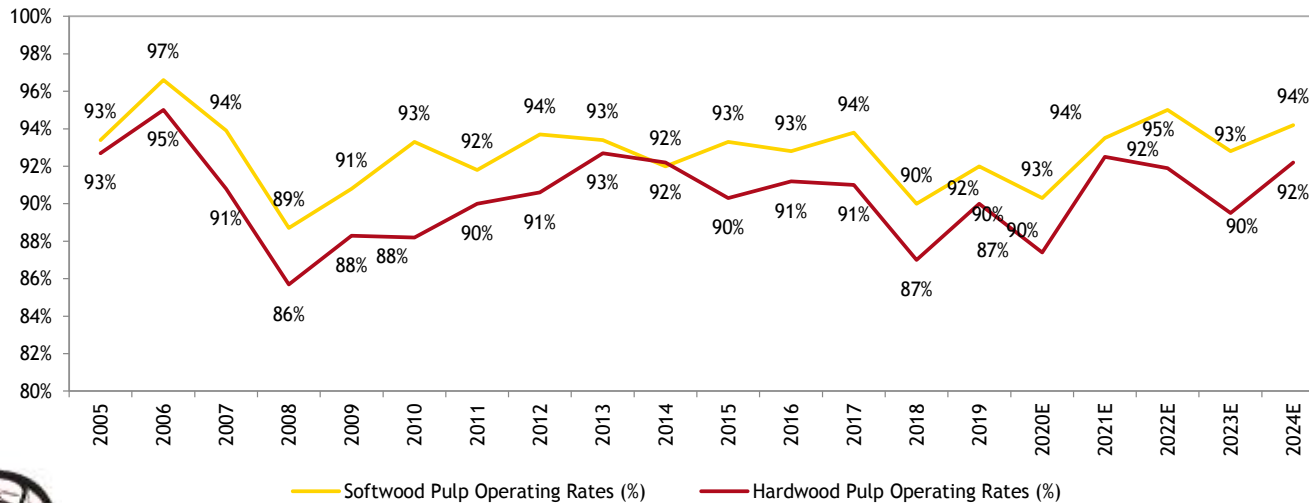
China remains the largest buyer of market pulp.

Prices were at cyclical lows going into COVID, but have rebounded and are approaching historical peaks.

Why? Strong demand for packaging and tissue products due to COVID, which are heavy users of NBSK Pulp.

Producers have been able to supply pulp despite COVID, with operating rates at cyclical highs for both softwood and hardwood pulp.

Strong production of market pulp increases the demand for "lower value" pulp wood.

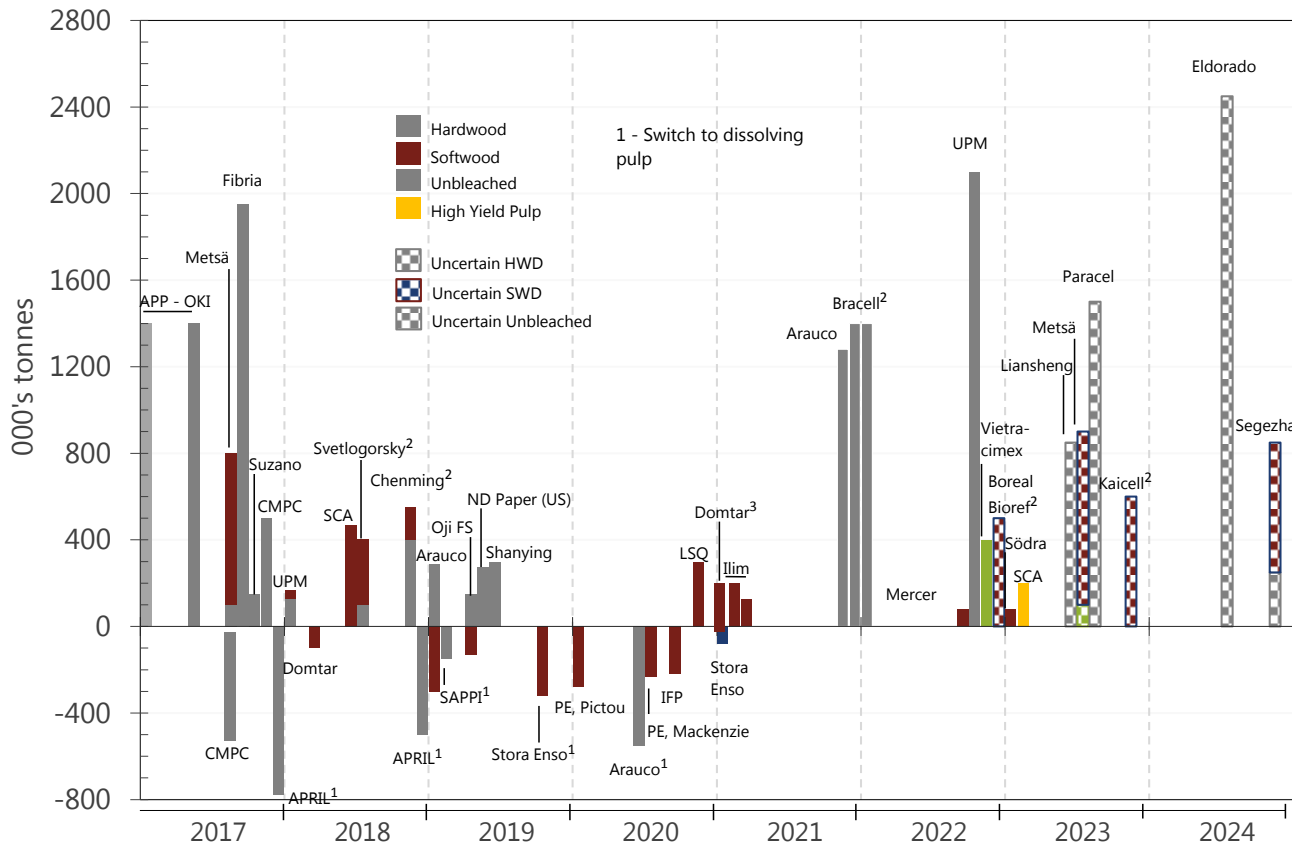


• Source: Brian McClay, Nawitka Capital Advisors.



Market Pulp – Global Capacity Changes

Selected Paper-Grade Market Pulp Capacity Changes



Significant increases in market pulp capacity are expected over the 2021-2024 period.

~7 million tpy for sure in 2021/22. Almost all in South America, but some in Scandinavia & Vietnam

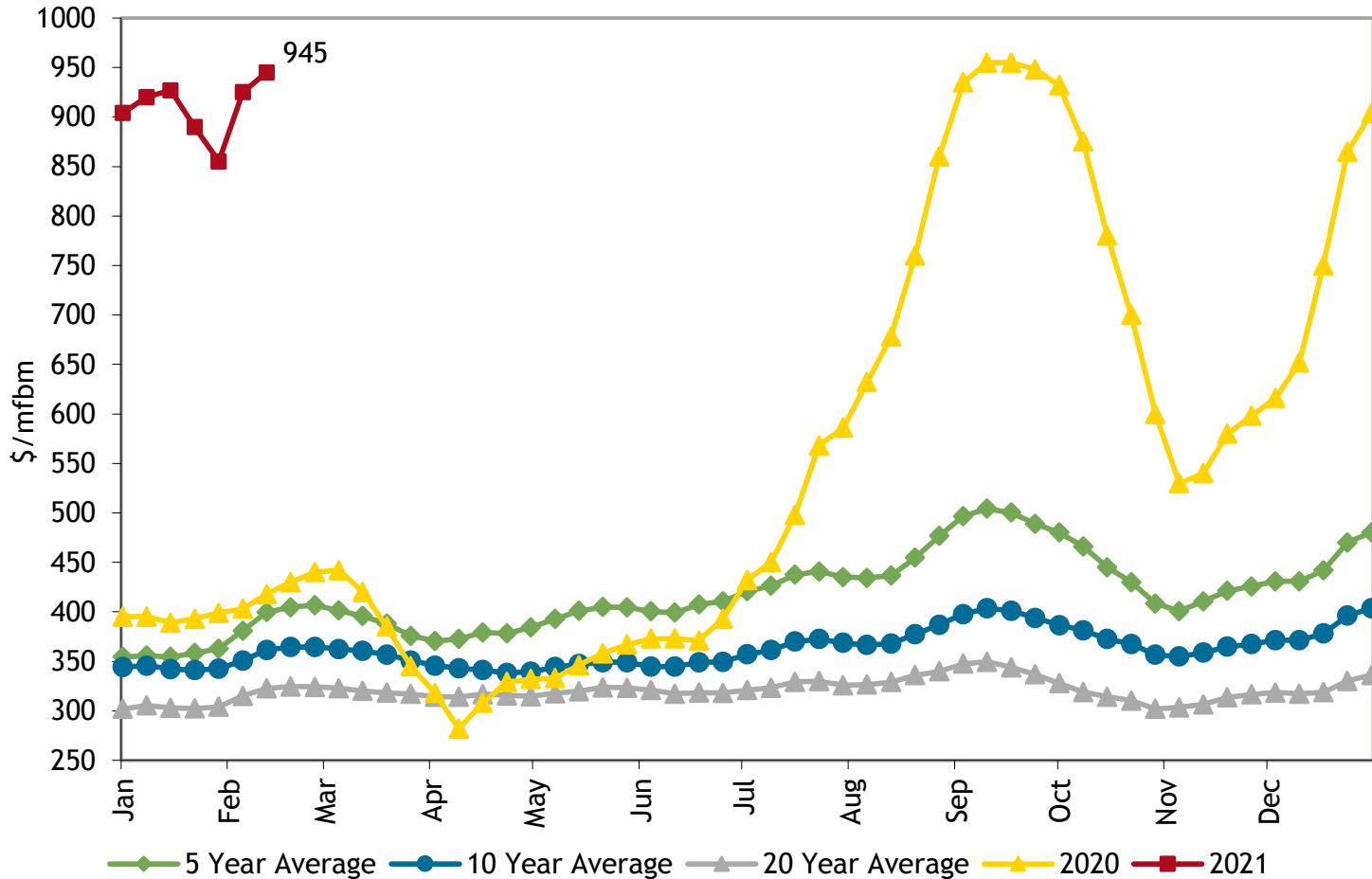
Another ~7 million tpy likely in 2023/24 in South America, Scandinavia, Russia and China.

The ~14 million tpy of new capacity will bring pulp prices back to historical norms, and increase the global demand & price for pulp wood.

• Source: Brian McClay & Associates Inc. and Nawitka Capital Advisors.



North American Lumber Prices – At Historical Highs



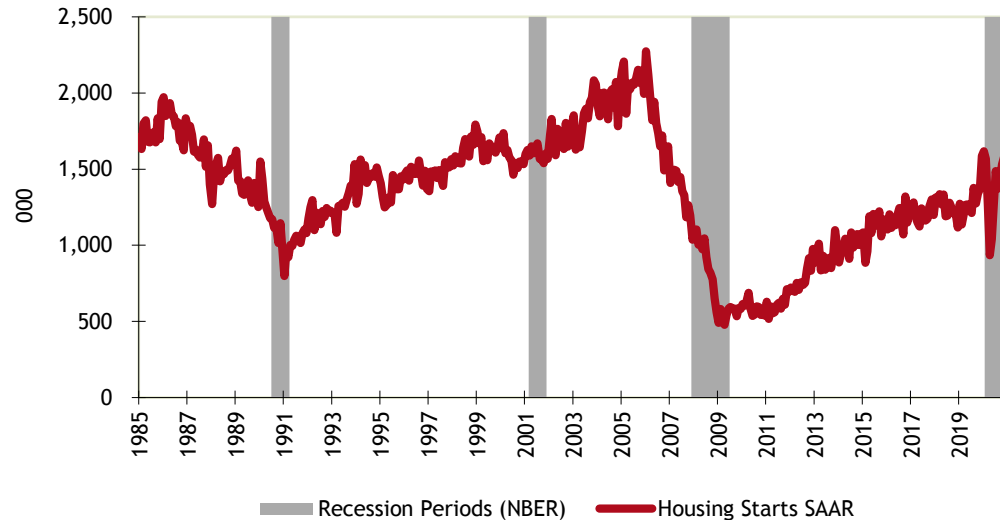
Lumber prices are strong in Europe and Asia and at historical highs in North America - more than 2.5x than their 10-year average in the U.S..

Why? Although there have been some disruptions to supply chains, shipments have been surprisingly strong. The key driver of higher prices has arguably been stronger demand.

• Source: Random Lengths, FEA, FactSet and Nawitka Capital Advisors.



U.S. Housing Starts – Consensus Expecting Growth Of 6% In 2021



Housing starts in the U.S. dropped dramatically when COVID first hit, but they have bounced back sharply. Strong demand for lumber reflects: mortgage rates near all-time lows (<3%), Builder Confidence near all-time highs; significant increase in repairs & renovations & shift to lower-density housing due to COVID; and favorable demographics.

In terms of trade flows,

- North American lumber producers have focused on the hot U.S. market, and away from overseas export markets like China.
- European & South American lumber producers have increased shipments to China, Japan and the U.S. Sweden is now the 3rd largest lumber exporter to China after Russia & Canada.

• Source: National Association of Homebuilders, National Association of Realtors, MBA, FEA, Fannie Mae, Freddie Mac, U.S. Census Bureau, NBER, Bloomberg and Nawitka Capital Advisors.



COVID – THE DOWNSIDE

- The industrial-based forest sector has fared surprisingly well in response to the COVID-induced global recession, which is arguably the worst in over 100 years. While there have been some disruptions in global supply chains, production & shipments have responded better than expected to forest product prices that are at or near historical highs.
- The pandemic has caused a dramatic shift in the priorities for many governments, and will have long-term negative impact on government budgets and public finance.
- COVID and the economic recession has had a much more negative impact on other sectors and segments of the global economy. As highlighted by RRI and The Tenure Facility, Indigenous Peoples and local communities have been some of the hardest hit by the virus: respected elders have died and communities have suffered.
- The combination of wounded Indigenous & local communities which depend on the forest sector, and higher global forest product prices, is of concern since it has created the conditions for increased deforestation and human rights abuses. All national forest agencies should be mindful of this situation.



OTHER SHOCKS TO FOREST PRODUCTS TRADE

- **Russian log export ban**

- Russia has been a leading log exporter for decades, and this may come to an end in 2022. In Nov 2020, Russia's President Putin announced plans to totally ban the exportation of softwood logs and high-value hardwood logs as of January 1, 2022. Russia is also considering new regulations aimed at reducing the exportation of green softwood lumber.
- Even after imposing high export taxes on logs back in 2008, Russia still exported ~15 million m³ of logs in 2020 (almost 12% of globally traded roundwood). If enacted, the ban will have the most significant impact in Eastern Russia, where ~10% of the timber harvest is exported in log form.
- The primary objective of the ban is to stimulate further value-added processing within Russia and better control illegal logging. Within Russia, we expect this will primarily stimulate the export of lumber, panels and wood pellets.
- China and Finland are the two countries which are expected to be most negatively affected by the ban. It is expected to also stimulate exports of raw logs from other countries in Oceania, Africa, Europe and the U.S., and decrease Canadian and European exports of lumber to China.



OTHER SHOCKS TO FOREST PRODUCTS TRADE

- Massive Bark Beetle infestation in the forests of central Europe has continued to result in significant increases in salvage logging and a greater supply of lower quality wood fiber onto international markets. Much of the increased volume is being shipped to China for remanufacturing, or used as a feedstock for generating bio-power in Europe.
- Chinese trade disputes with the U.S. and Australia have resulted in lower log and lumber imports from those countries. However, much of the shortfall appears to have been met by increased imports from Europe, Chile and New Zealand.



THE RESPONSE TO CLIMATE CHANGE

- There is on-gong evidence of tangible impacts of climate change.
 - Wild fires in Western North America ,Europe, Australia, Brazil
 - Droughts & floods on every continent.
 - Hurricanes & typhoons are becoming more destructive
- Despite the social and economic upheaval, many jurisdictions are accelerating their efforts on climate action. For example,
 - Europe’s RED II (14% renewable content in transport fuels by 2030)
 - China’s 14th Five Year Plan
 - U.S. has re-engaged with the Paris Agreement, and is re-assessing the full cost off carbon that would be considered in every rule, regulation and policy enacted as part of President Biden’s “whole-of-government” approach to tackling climate change. New York State has already formally adopted a full carbon cost of \$125 per ton.
- Important actors in the private sector are starting to explicitly consider carbon reduction strategies in their business decisions.
 - Managers Of \$40 Trillion in Financial Assets Make Plans To Decarbonize The World (Forbes, September 2020). In January 2021, the CEO of BlackRock – the largest financial asset manager in the world – said *“We are asking companies to disclose a plan for how their business model will be compatible with a net zero economy.”*



THE RESPONSE TO CLIMATE CHANGE

The following leading private sector institutions have now committed to net-zero emissions, all within specific timelines:

- By 2030: Proctor & Gamble, Siemens, Ikea, Microsoft, Unilever
- By 2040: General Motors, Mercedes-Benz, AT&T, Walmart, Pepsico, Amazon
- By 2050: Shell, BP, Ford, Michelin, Nestle, Danone, Nike

Case Study: Shell

- Expects to radically transform over the next 30 years. By 2050, Shell's product mix will be dominated by renewable power, biofuels and hydrogen, with all fossil-based carbon in its operations either captured and stored, offset in nature, or embedded in materials.
- In February 2021, Shell's Global CEO Ben van Beurden stated *"I can imagine us capturing and storing maybe 50 million tonnes a year of carbon dioxide. I can imagine us working with nature to lock away maybe 300 million tonnes in forests, in wetlands and soils"*.

While public statements are promising, we have heard promises before. Significant improvements are only expected if there is a financial incentive to change. If too much carbon is the problem, what is the financial cost of carbon?



GLOBAL CARBON PRICES

- 61 carbon pricing initiatives are in place or scheduled for implementation around the world.
- Selected International Carbon Prices (\$US/tCO₂e in April 2020)
 - Sweden \$119/ Finland \$68/ France \$49/EU ETS \$19/California \$15/Beijing Pilot \$12/Japan \$3
 - Canada recently announced it will raise its national carbon price from C\$30 in 2020 to C\$170 in 2030 (~\$US130)
- Carbon pricing covers only about 27% of global GHG emissions.
- Prices also remain substantially lower than those needed to be consistent with the Paris Agreement. The High-Level Commission on Carbon Prices estimated that carbon prices of at least \$40–80/tCO₂ by 2020 and \$50–100/tCO₂ by 2030 are required to cost-effectively reduce emissions in line with the temperature goals of the Paris Agreement. As of today, less than 5 percent of GHG emissions currently covered by a carbon price are within this range with about half of covered emissions priced at less than \$10/tCO₂e, and the IMF calculates the global average carbon price is only \$2/tCO₂.
- It is politically difficult to raise economy wide carbon prices to a sufficient level to really reduce GHG emissions. As a result, some governments are embracing sector specific pricing through the implementation of Low Carbon Fuel Standards, with an initial emphasis on the transportation fuels sectors. In practice, this allows much higher carbon related prices:
 - California ~\$190 / British Columbia ~\$254; Germany ~\$460



THE EMERGING BIO-ECONOMY

What is the role of the forest sector in achieving the goal of net-zero carbon?

- Sequestration of carbon - Forestry sector credits made up 42% of all carbon credits issued in the last 5 years (World Bank)
- Substitution of carbon neutral bio-based products for high carbon intensity products.

David Brand will speak more to the first role, and the remainder of this presentation will focus on the second role.

- Bio-power
 - Export of wood pellets to generate electricity is frequently cited as an opportunity for many forested countries around the world.
 - Biggest market is in Europe, but European demand for industrial bio-power production is leveling off.
 - Significant growth in the Japanese market to produce power from wood pellets.
 - Japanese wood pellet consumption grew ~4x over the 2017-2020 period in the aftermath of the Fukushima nuclear accident.
 - Biggest supply of ~1.2 million tonnes from Vietnam - a 9x increase, which now represents almost 60% of the supply (more than 2x Canada's share).
 - In general, bio-power does not have a strong growth forecast due to lots of cheaper intermittent renewable electricity from wind & solar.
 - Even bio-power's traditional advantage in providing base-load low-carbon electricity is being increasingly challenged.
 - Small scale modular nuclear power plants (as small as 2 mega watts) will start being deployed around 2026 - not as cheap as hydro, but competitive with natural gas with modest carbon prices, and cheaper than most bio-power.



THE EMERGING BIO-ECONOMY

Focus on what can be uniquely produced by biomass:

- Low carbon transportation fuels, bio-chemicals and biomaterials
- Given an uncertain future, focus on optionality. One strategy is to produce bio-crude oil, which is an intermediate product that can produce a range of renewable products. It is essentially a “soup of renewable chemicals.”
 - Initially focus on transportation fuels since it is being actively encouraged by governments in a number of countries with clear financial incentives (eg., through Low Carbon Fuel Standards).
 - One advantage of bio-crude oil is that it leverages existing infrastructure in the petroleum industry to make the final product. This means it needs significantly lower investments, and will get less resistance from established industries.
 - Within the petroleum industry, bio-crude is being most aggressively explored by Shell, BP & Total globally; Preem in Sweden; and Petrobras in Brazil.
- Bio-chemicals and bio-materials are arguably more attractive in the long-run. However, in the absence of clear financial incentives (eg., a value on stored carbon in buildings), we are sceptical about their shorter term economics and how much will be consumed.



CONCLUSIONS

- Change is difficult.
- With global markets for traditional forest products being so strong, what role will the forest industry play in achieving the net-zero carbon targets?
 - Will it recognize the structural changes in the economy, and embrace the emerging bio-economy?, or,
 - Will it see its strong cash flow and balance sheets and say – *"If it's not broken, why fix it?"*
- Will new players enter the forest sector to "green" their traditional industries?
 - Will they have access to the land base?
 - What will be the role of the forest agencies in that process?
- We may soon see who are the real innovators in both the public & private sectors.

