Item 5
Wood-Based Panel Market Update
Current status and Outlook

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Strong growth in 2021 but down 25.6% through Q3 2022 with further declines anticipated in 2023
The North American Market
North American Wood-Based Panel Capacity Utilization, 2020-2021

<table>
<thead>
<tr>
<th>North American Capacity Utilization</th>
<th>2020</th>
<th>2021</th>
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<tbody>
<tr>
<td>Plywood</td>
<td>71.4%</td>
<td>73.9%</td>
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<tr>
<td>OSB</td>
<td>73.5%</td>
<td>76.5%</td>
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<tr>
<td>PB</td>
<td>61.0%</td>
<td>71.7%</td>
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<tr>
<td>MDF</td>
<td>76.4%</td>
<td>80.4%</td>
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Strong increases in 2021 but likely down in 2022 and 2023
Structural panel prices down sharply after peaking in early 2021 and 2022 while PB and MDF have sustained price increases.
Primary market for OSB is residential housing while for plywood it is more evenly distributed, OSB could suffer if housing starts fall.
### The North American Market
North American Structural Panel End-Use Markets, 2020-2021

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<th>Change</th>
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<tbody>
<tr>
<td></td>
<td>OSB 21/20</td>
<td>Ply 21/20</td>
<td>Total 21/20</td>
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<tr>
<td>Non-residential</td>
<td>-8.70%</td>
<td>-12.41%</td>
<td>-10.28%</td>
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<td>Remodeling</td>
<td>-0.34%</td>
<td>5.49%</td>
<td>1.85%</td>
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<tr>
<td>Residential Housing</td>
<td>14.23%</td>
<td>19.05%</td>
<td>15.20%</td>
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<tr>
<td>Industrial</td>
<td>2.77%</td>
<td>4.36%</td>
<td>3.68%</td>
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Biggest gains for both OSB and plywood were in residential housing with big losses in non-residential market, high mortgage rates mean that RH will likely decline in 4Q 2022 and 2023, bad for OSB.
Inflation appears to be easing slightly over past quarter but remains higher than the Fed would like, suggesting further increases in the fed rate.
Fed has raised rates 6 times in 2022. At least one additional raise anticipated before the end of 2022 (.5%?). Two more raises are anticipated in early 2023.
Interest rates have jumped from 3.05% to 7.1% in 2022 and could approach 10% in early 2023 before easing to 5-6% by the end of 2023.

Higher mortgage rates and increased inflation have begun to cool the housing market in the US...

Canada Housing Starts
(Thousands, Seasonally Adjusted Annual Rate)

2021: 280,000
2022: 265,000
2023: 260,000

...and in Canada

US Wood Imports

Total US wood imports were up by 5.4% through Q3 2022 whereas US wood imports from Russia declined significantly in recent months.

Total US imports of structural wood panels were down by 20.5% through Q3 2022.
Strategic Observations

• Federal Reserve raised interest rates six times so far in 2022 and anticipates another .5 point rise before the end of the year and more in early 2023
• Mortgage rates in the US have jumped from 3.05% to 7.8% in 2022 and could approach 10% by the end of 2023 if the Fed continues to increase interest rates
  • 3.05% for 30 years on $400,000 equals monthly payment of $2,092
  • 7.1% for 30 years on $400,000 equals monthly payment of $3,083
• Combination of high mortgage rates, inflation and low housing affordability will reduce housing starts in 2023: -16.6% in the US and -11.5% in Canada. Overall a 15.8% drop expected for 2023.
• NA Structural WBP prices and production will decline although PB and MDF should perform well in 2023.
The EU Market: Key questions

• Wood-based panels industry overview after Covid
• Consequences of the Russian war on Ukraine for the wood-based panels industry
• Origins and consequences of energy crisis in Europe
• Long-term perspective for the wood-based panel industry
European Panel Federation representing a strong European industry

- Members in 30 European countries
- All wood-based panel types represented (Particleboard, MDF, OSB, Hard- and Softboard, Plywood)

- 100 companies
- 200 sites
- 100,000 jobs
- €25 billion turnover
Strong recovery after Covid: Wood-based panels production in Europe recovered strongly

- Real GDP in the EU27
  - 5.4% in 2021
- Continued demand from furniture (+11%) and construction (+5%)

(millions m³)

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<td>75</td>
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2020: -2%

2021: +10%
Furniture boards represent more than 50% - strong growth in green building-related panels (OSB and softboard)

Share of production per type in EU27+UK+EFTA, 2021

- Particleboard: 54% (+7.0%)
- Softboard: 9% (+19.0%)
- OSB: 11% (+6.3%)
- MDF: 20% (+6.0%)
- Plywood: 5% (+6.8%)
- Hardboard: 1% (+2.3%)

*() = growth 2021 vs. pre covid 2019
February 24 changed the world: Severe consequences for the European wood-based panel industry

1. Exploding costs for electricity and natural gas

2. Heavily increasing resin prices

3. Increasing wood prices because of
   a. lack of timber export volumes from Belarus and Russia and
   b. tendency to burn wood for energy production

4. Dire situation for Russian and Ukrainian plants of European operators

5. On top of all of this: Severe downturn in wood-based panel markets in Europe to be expected in the coming 6-12 months

Presented by EPF Chairman Mr Martin Brettenthaler during EU Wood-Based Panel Symposium in Hamburg in 12-14 October, 2022
Exploding costs for electricity and natural gas – extremely volatile without clear trend

The wood-based panel industry has probably **passed on most cost increases** to customers - however, as many producers are still benefiting from **long-term fixed prices and quotas**, the **current spot prices** are (in many cases) **not yet reflected** in the current market price level

(→ additional need for price increases in a difficult market environment on the demand side)

Presented by EPF Chairman Mr Martin Brettenthaler during EU Wood-Based Panel Symposium in Hamburg in 12-14 October, 2022
Russian war on Ukraine accelerates energy crisis that already has been in the making: German “Energiewende” is delusional

Electricity mix Germany
November 11, 2021

Real issue is not boycott on Russian natural gas, but no realistic substitute available for nuclear and fossil fuels

Source: Vince Ebert, «Lichtblick statt Blackout»

Presented by EPF Chairman Mr Martin Brettenthaler during EU Wood-Based Panel Symposium in Hamburg in 12-14 October, 2022
Energy prices drive resin prices

Presented by EPF Chairman Mr Martin Brettenthaler during EU Wood-Based Panel Symposium in Hamburg in 12-14 October, 2022
Sawmill residues (wood chips and sawdust) 5x vs 1 year ago!! (2.5x higher than 5 years ago)

Source: Euwid
Roundwood: Flat/Slightly down v 1 year ago, but 50% higher than 5 years ago
Consequence: Wood-based panels become "energy-based panels"

Normalized cost structure of MDF board produced in central Europe (based on 2019)

Presented by EPF Chairman Mr Martin Brettenthaler during EU Wood-Based Panel Symposium in Hamburg in 12-14 October, 2022
It is no longer business as usual, therefore our sector urgently requests:

1) **Secure gas supply** – be it a trade deal, be it restarting coal, be it nuclear - but burning more wood for energy cannot be the solution;

2) **Mobilise more wood** and more material use (45% to 60% material use) by cascading use of wood – **maintain cascade use requirements in REDIII**;

3) **Prioritise wood-based products** in line with the green deal:
   1. **Insulation** of home and office with nature-based solutions, such as wood-fibre panels, to be encouraged
   2. Climate positive, sustainable carbon storage products (e.g. wood) to be increased through transformational projects (**New European Bauhaus, Renovation Wave**);

4) **Reduce regulatory burden** wherever possible, at the same time doing everything to avoid that wood goes to landfill.
Outlook in the long run is positive: EPF will focus on five Strategic Directions to further develop our industry:

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<th>Direction</th>
<th>Focus Area</th>
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<td>Transforming Europe</td>
<td>Transferring Europe into a net-zero economy</td>
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<td>Make climate regulation work for our industry</td>
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<td>Secure access to our key raw material</td>
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<tr>
<td>Support one harmonised Europe and avoid fragmentation</td>
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<tr>
<td>Defend the industry against excessive regulation</td>
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Thank you!