

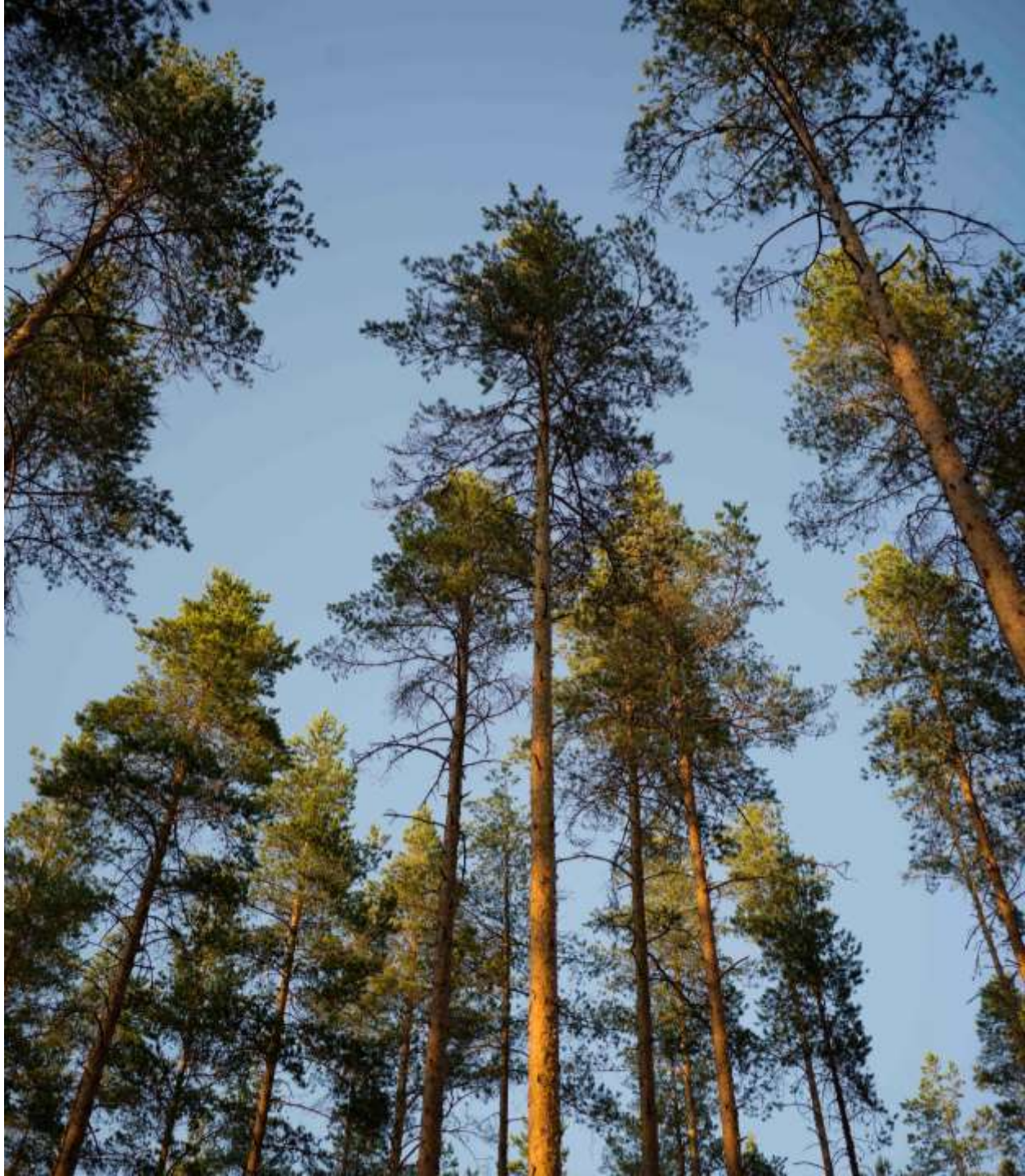


Opportunities for CCU in forest industry

13 February 2025
Minna Mentzer Metsä Group

Agenda

- Metsä Group in short
- CO₂ market
- Carbon capture at Metsä



* 2024, internal sales excluded
** Shares listed on the Nasdaq Helsinki
***the amount of biofuels produced

Metsä Group | Sales* EUR **5.7** billion | Personnel **9,600** | Renewable energy*** **26.3** TWh

Metsäliitto Cooperative | The Group's parent company | Owned by over 90,000 Finnish forest owners



METSÄ FOREST

Wood supply and forest services

Sales:
EUR 2.4 billion

Personnel:
700



METSÄ WOOD

Wood products

Sales:
EUR 0.6 billion

Personnel:
1,700



METSÄ FIBRE

Pulp and sawn timber

Sales:
EUR 2.3 billion

Personnel:
1,500



METSÄ BOARD**

Paperboard

Sales:
EUR 1.9 billion

Personnel:
2,300



METSÄ TISSUE

Tissue and grease-proof papers

Sales:
EUR 1.2 billion

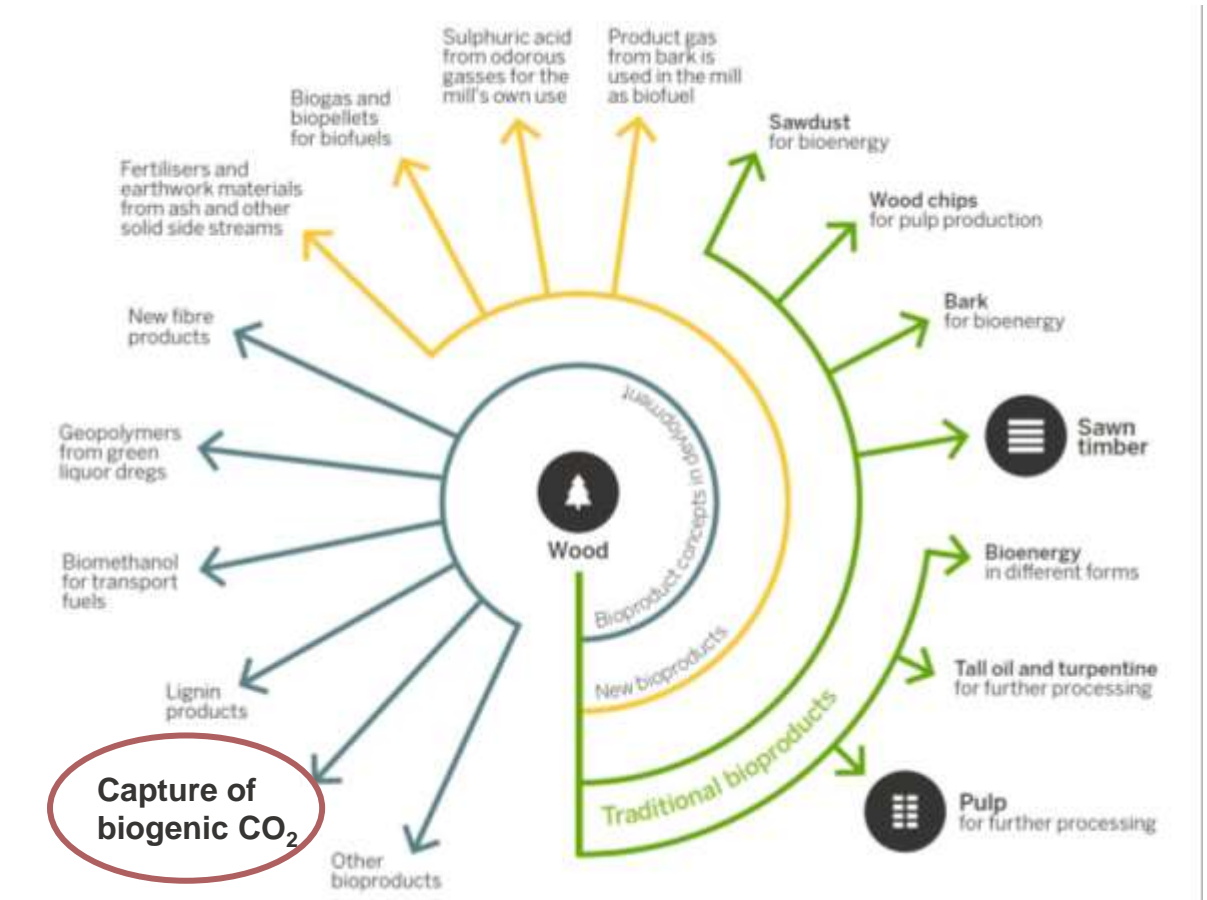
Personnel:
2,500

METSÄ SPRING | Innovation company



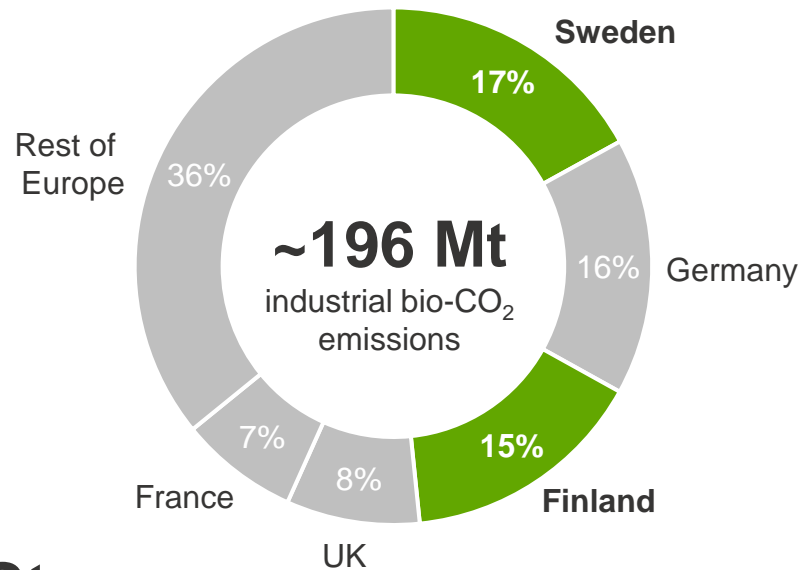
Wood-based carbon capture and utilisation is a major opportunity

- Part of the circular economy and the resource-efficient bioproduct mill concept
- Captured wood-based carbon dioxide is a valuable raw material for replacing fossil-based raw materials and fuels
→ Climate impact
- Enables the development of a significant new industry in Finland



The bio-CO₂ side stream of Metsä Group's mills is approximately 12 Mt

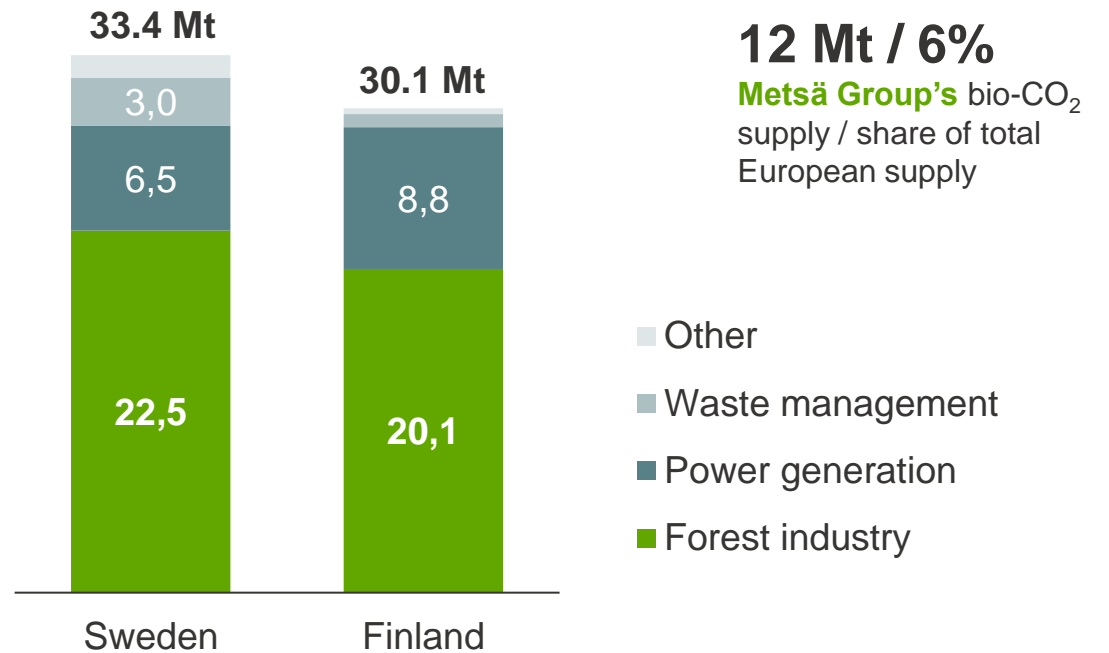
Finland and Sweden are major sources of biogenic CO₂ in Europe



2.4 Gt

Industrial fossil-based CO₂ emissions in Europe 2022

In Sweden and Finland, the majority of biogenic carbon dioxide originates from pulp mills



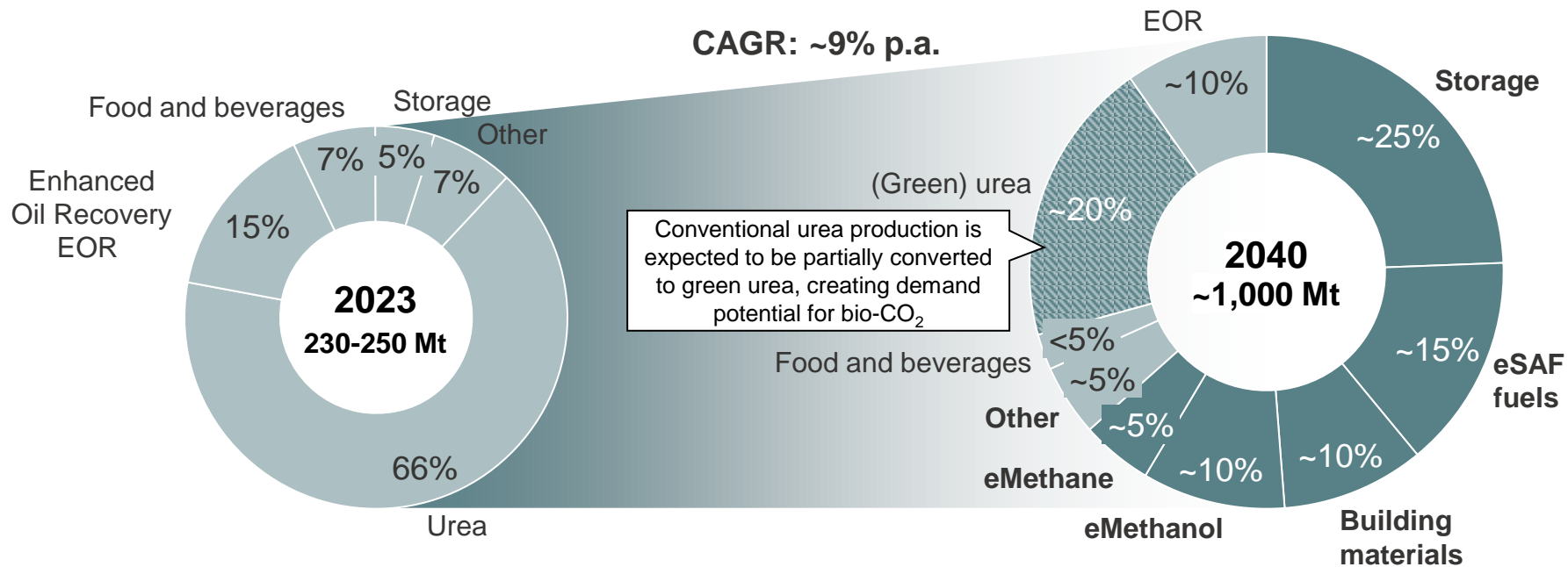
12 Mt / 6%

Metsä Group's bio-CO₂ supply / share of total European supply

- Other
- Waste management
- Power generation
- Forest industry

Global demand for CO₂ grows considerably by 2040 driven by various large-scale end uses

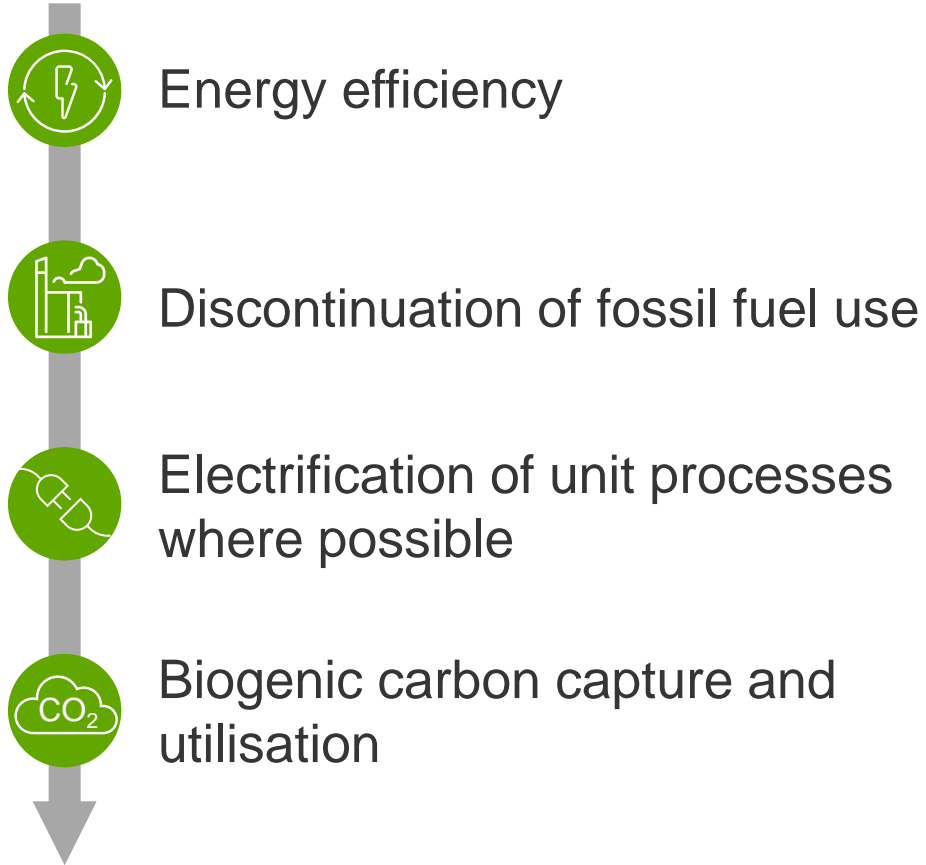
Global view on CO₂ consumption, MtCO₂ (including both fossil and biogenic CO₂)



Demand potential for commercial biogenic CO₂

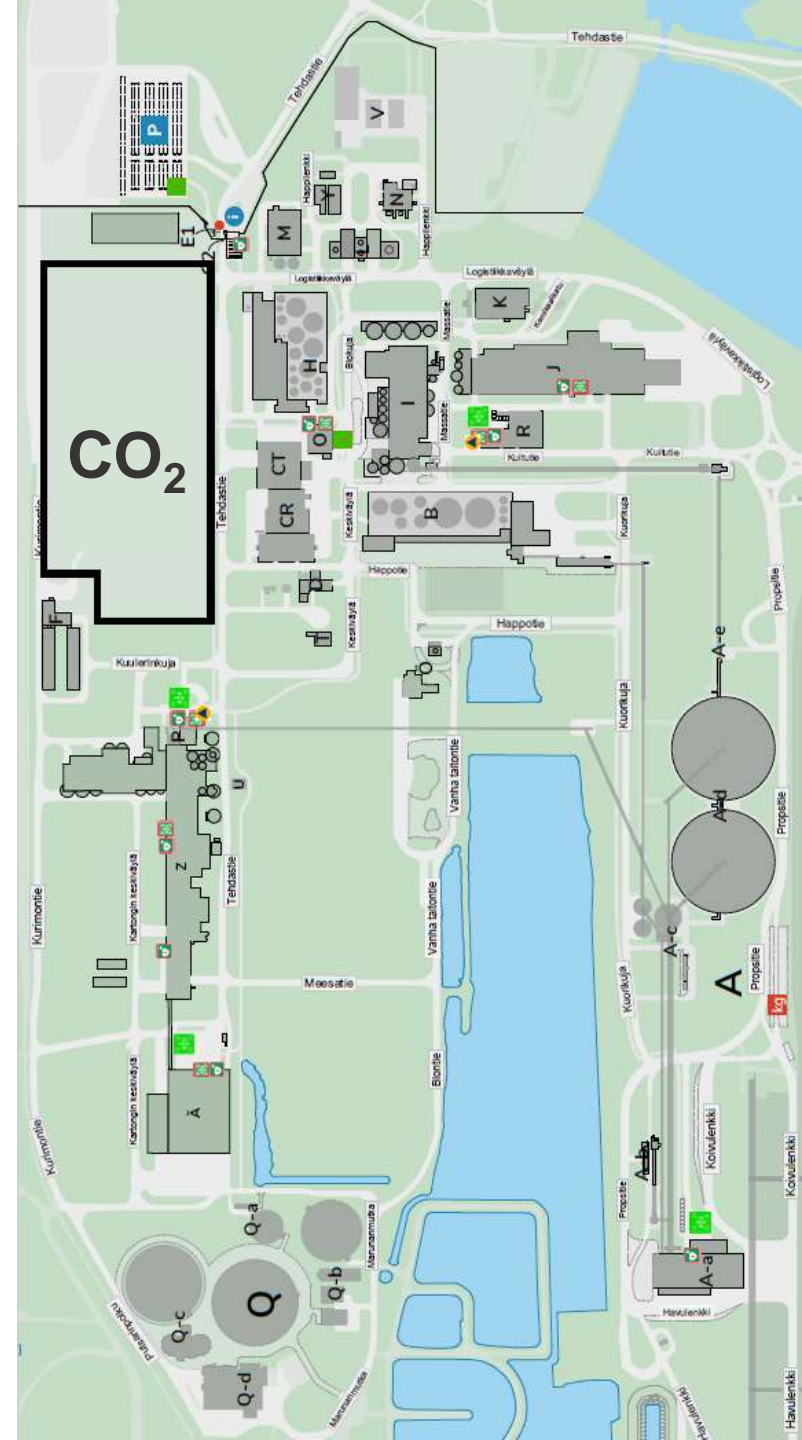


Route for reducing industrial CO₂ emissions

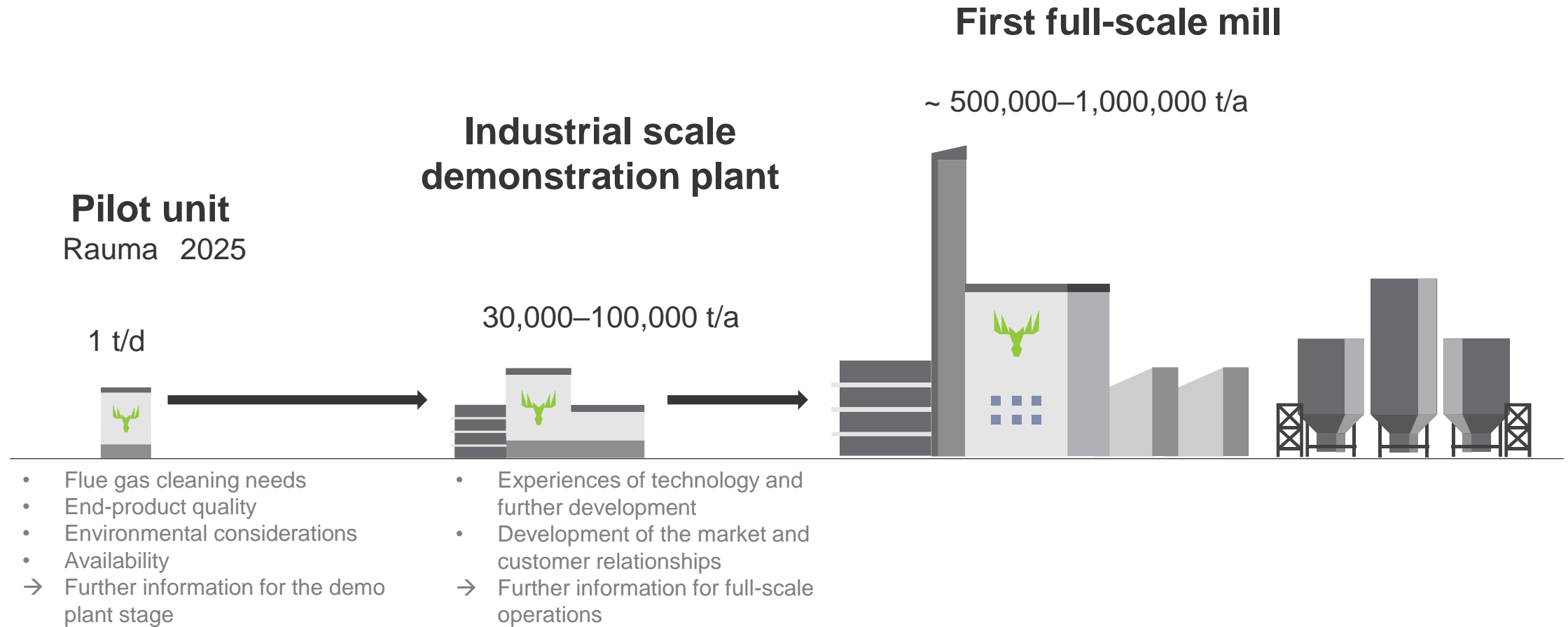


Technological opportunities for carbon capture

- Metsä Group and Andritz have jointly explored the integration of a large-scale carbon capture facility into the Kemi bioproduct mill (Kemi bioproduct mill's total amount: 4 Mt CO₂)
- Carbon capture requires a great deal of heat energy
- Energy costs are the most significant production costs
- Around 20% of the energy required for carbon capture can be obtained from the bioproduct mill's heat flows
- Other technological solutions are also required. The required technology is not yet commercially available on this scale
- Technological development will make large-scale capture possible



Metsä Group proceeds in stages



Summary

- The capture of wood-based carbon dioxide is part of the circular economy and the resource-efficient bioproduct mill concept
- A valuable raw material for replacing fossil-based raw materials and fuels → climate impact
- Enables the development of a significant new industry in Finland
- The market is still undeveloped → step-by-step progress
- Technological development is required to reach a profitable level in production costs across the value chain





Metsä

**Growth, with
a future**