Wood-based and recyclable: UPM BioPET

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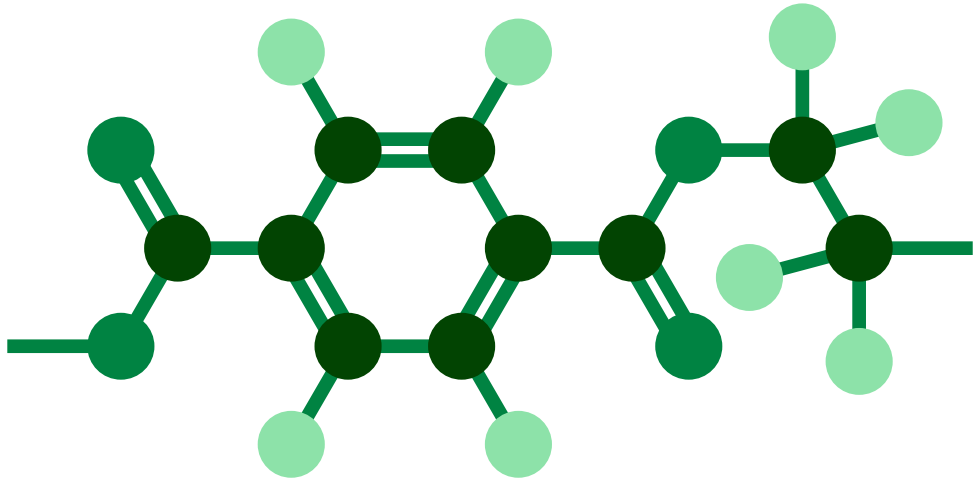
Quick re-cap: What is PET?

- **PET = Polyethylene Terephtalate = "Polyester"**
- PET is widely used in beverage bottles, food trays, beauty cream jars, liquid soap containers and pharmaceutical blisters. Polyester in textiles!
- PET consists of **two monomers**:
  - → Monoethylene Glycol (**MEG**)
  - → Purified Terephtalic Acid (**PTA**)



We can do both from wood!

Why BioPET

In a nutshell: Why BioPET in packaging?

- **Sustainability**: Made from **local**, renewable **wood**, with a best-in-class **net-zero footprint!**
- **Recyclability**: BioPET is 100% **plug and play** and can be recycled in the **same stream** as traditional PET!
- **Performance**: Same high-quality properties as traditional PET, such as **durability**, **clarity**, and **barrier** protection.
- **Consumer Appeal**: Using BioPET enhances **brand image** and meets **market expectations** for eco-friendly, **plant-based** packaging.
- **Compliance**: BioPET helps companies comply with increasing pressure aimed at **reducing Scope 3 emissions** and promoting **sustainable packaging** solutions. **Pharma and Food** compliance tested!

The future of plastics in 2050: Bio-based raw materials complement recycled plastic

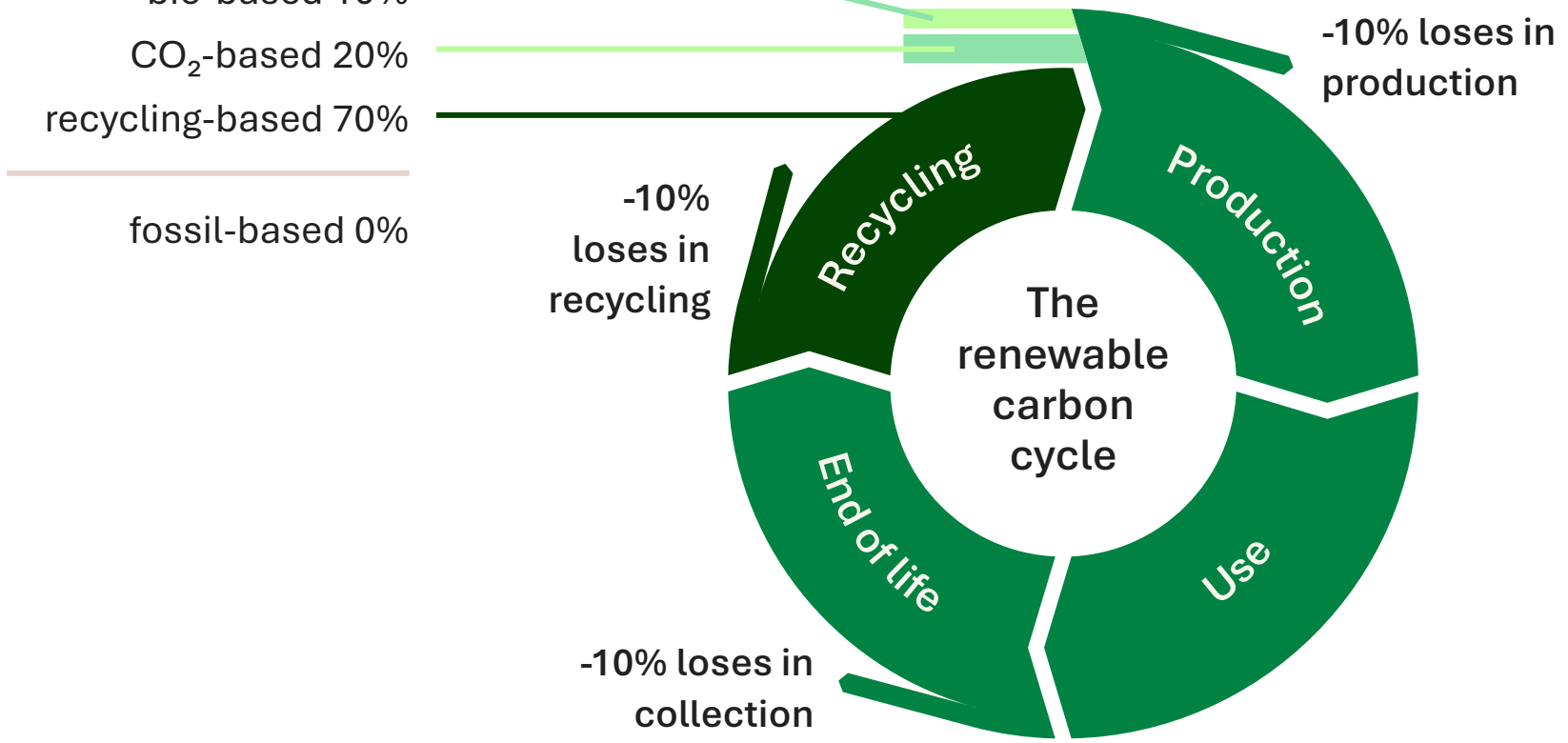
Scenario for the plastic industry 2025

bio-based 10%

CO_2-based 20%

recycling-based 70%

fossil-based 0%



source: www.renewable-carbon.eu/graphics

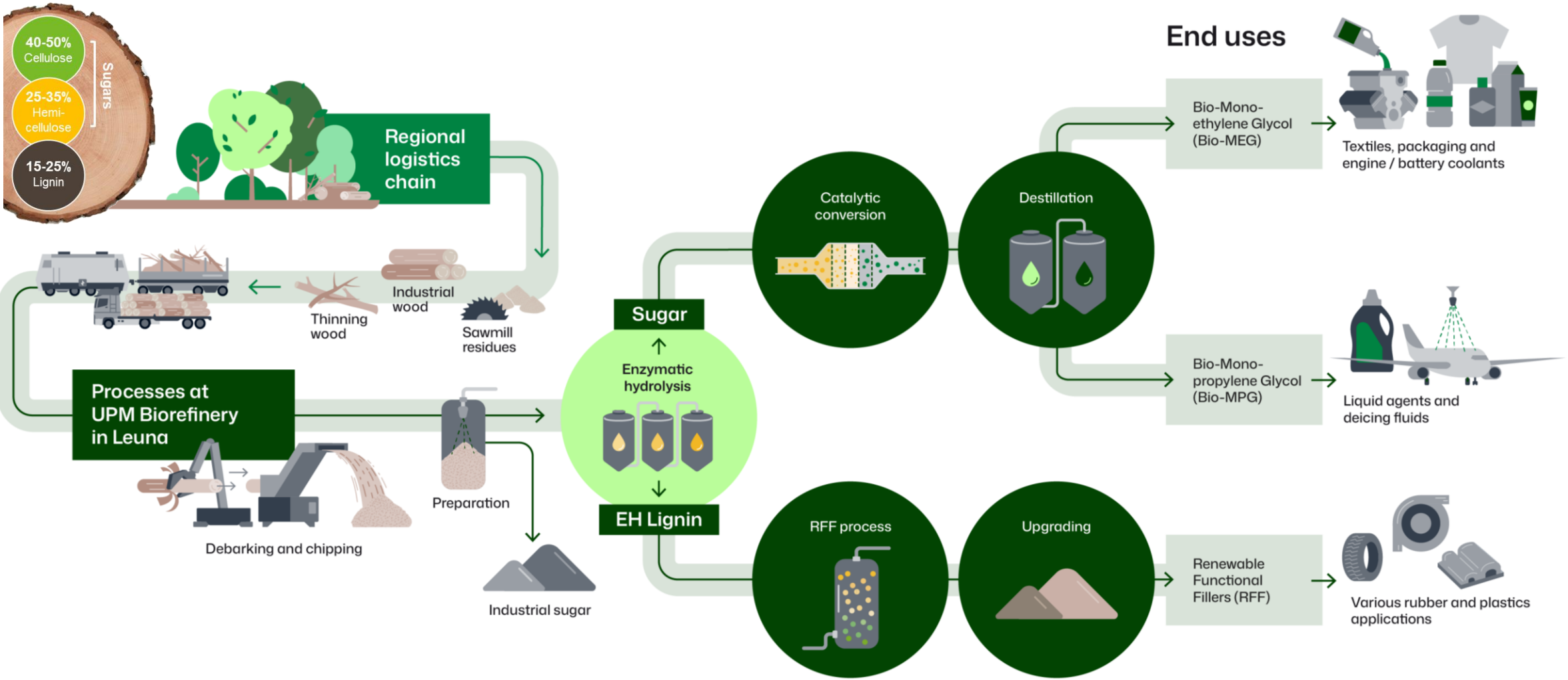
UPM BioPura™ BioMEG from sustainable hardwood

UPM invested EUR 1.28 billion in industrial scale biorefinery at Leuna, Germany

- **Output:** 100% **wood-based** chemicals to replace fossil-based materials in diverse applications.
- **Key Products:**
  - → **BioPura™ MEG: A bio-based monoethylene glycol**
  - → BioPura MPG, Industrial Sugars, and Renewable Functional Fillers (RFF).
- **Facility Highlights**
  - → **Annual Capacity:** 220,000 tonnes.
  - → **Ramp-Up Start:** Sequentially, since January 2025.

UPM biorefinery in Leuna, Germany

Unique technology converting wood to biochemicals



UPM Biochemicals
The origin of our wood

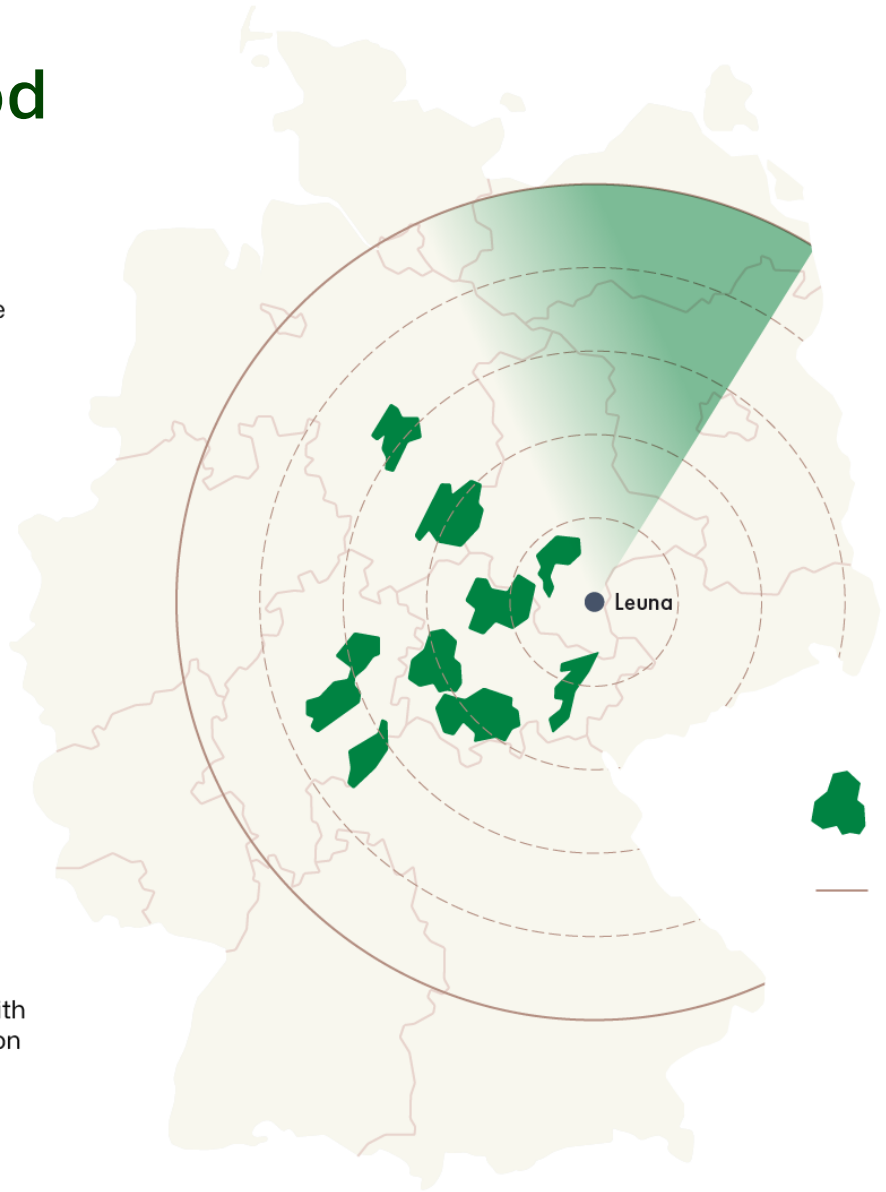
Beechwood from forest management in federal, state and private forests

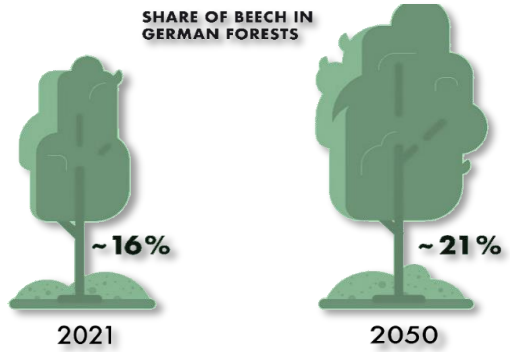
Residues from sawmills and other wood producers

100% of the wood is FSC® and PEFC certified

Full chain of custody and traceability

Transparent supply chains with regional partners and focus on emission-optimized transportation modes



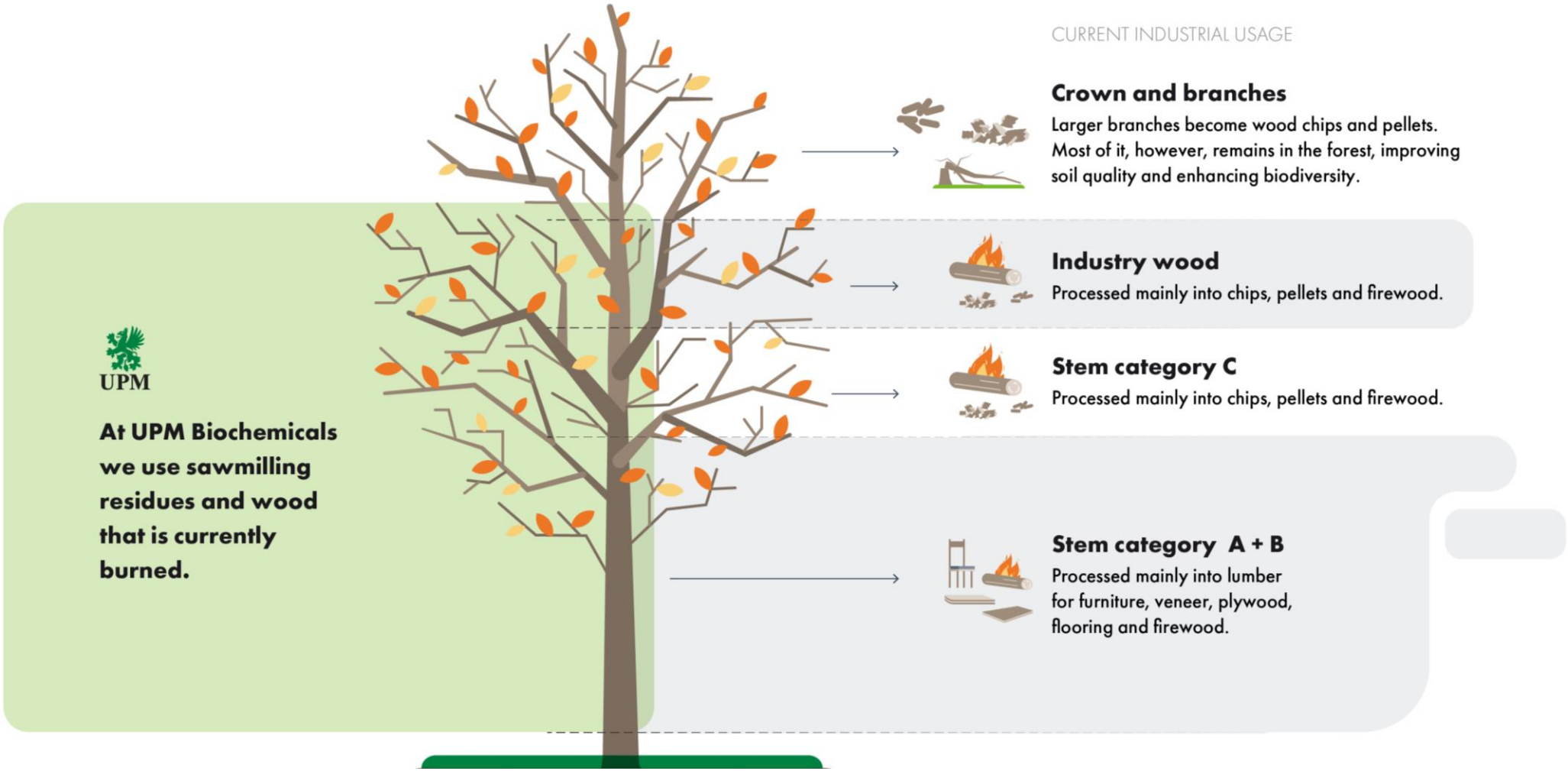


Primary sourcing focus

Extended sourcing areas

- **2nd Gen. Feedstock**
- **Zero Deforestation!**

Current use of beechwood
Which parts are used for that?



Wood-based UPM bioPTA

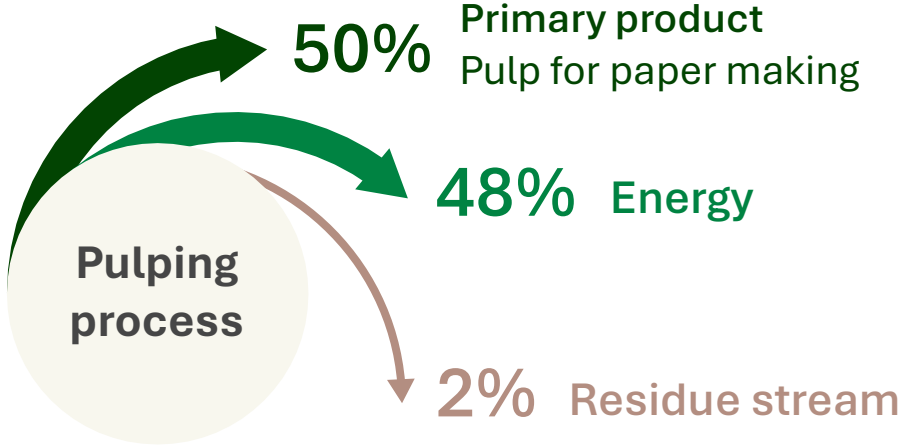
UPM Biofuels

UPM Lappeenranta Biorefinery
July 2024

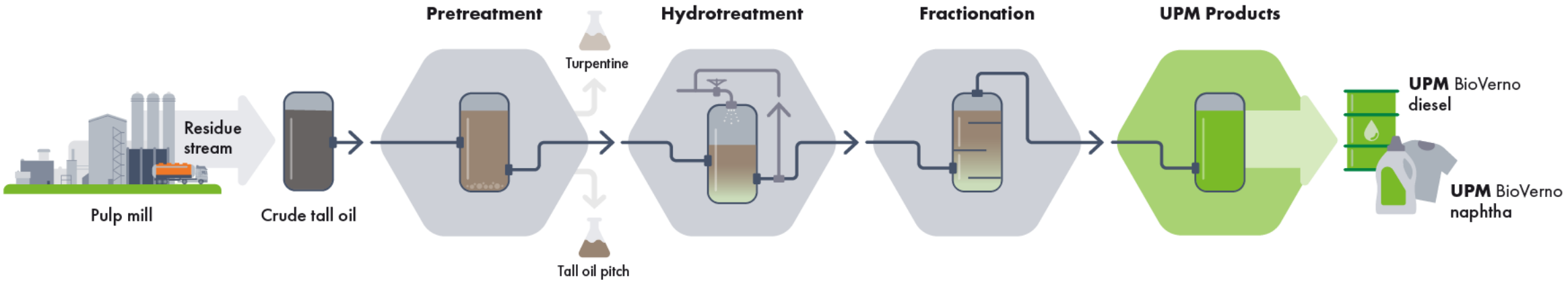
Brand new,
Second hand.

UPM BioVerno uses crude tall oil, a wood-based residue left over from pulp production.

Using materials that require no new harvesting avoids negative effects associated with conventional crop-based biomass.



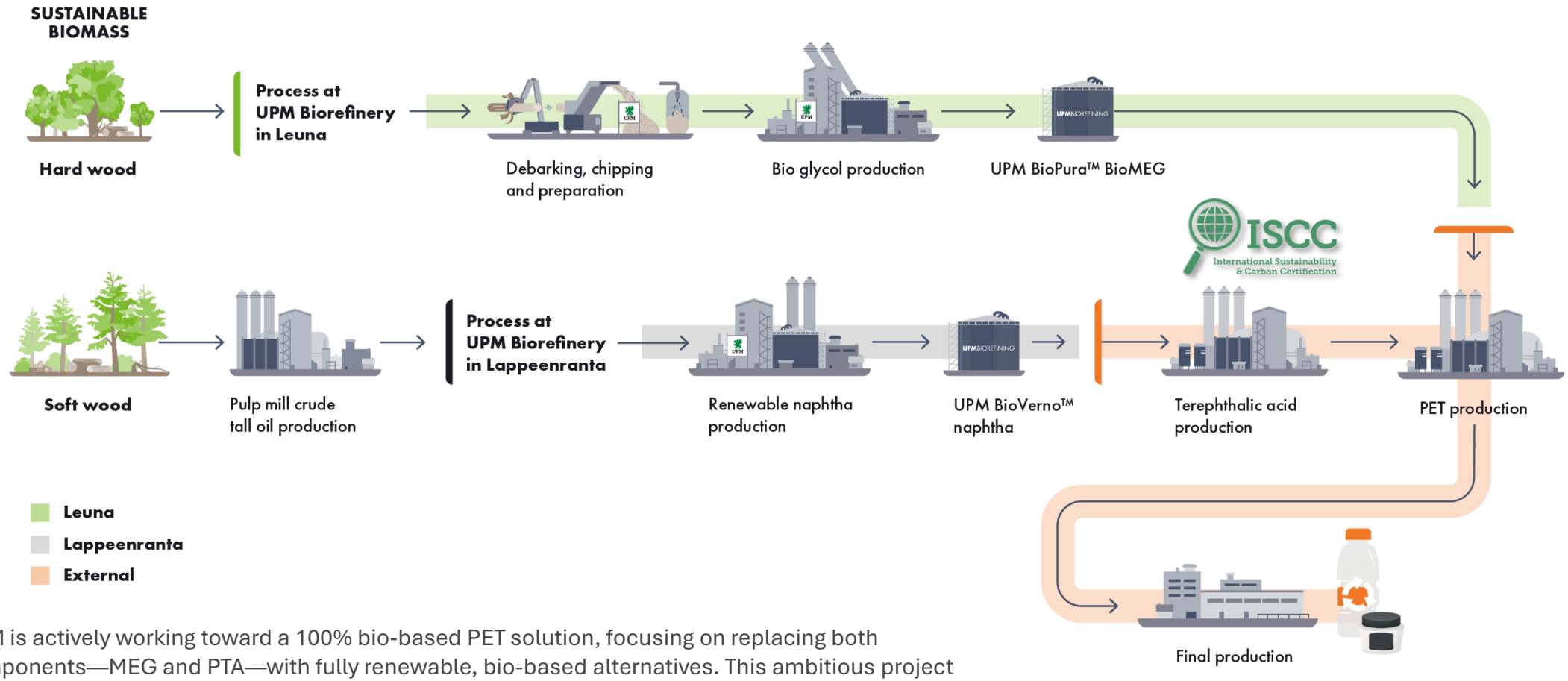
Transport fuels and chemicals
Providing a renewable and sustainable alternative



Putting the pieces together:

100% wood-based BioPET

UPM enabling 100% BioPET – available in 2026



UPM is actively working toward a 100% bio-based PET solution, focusing on replacing both components—MEG and PTA—with fully renewable, bio-based alternatives. This ambitious project aligns with our vision of a fossil-free future for plastics.

Let‘s Work Together!

Value chain towards sustainable PET packaging

UPM

Plastipak

selenis

INDORAMA VENTURES

Your existing supply chain!

Excited to lead your company towards sustainable solutions?

UPM Biochemicals

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