

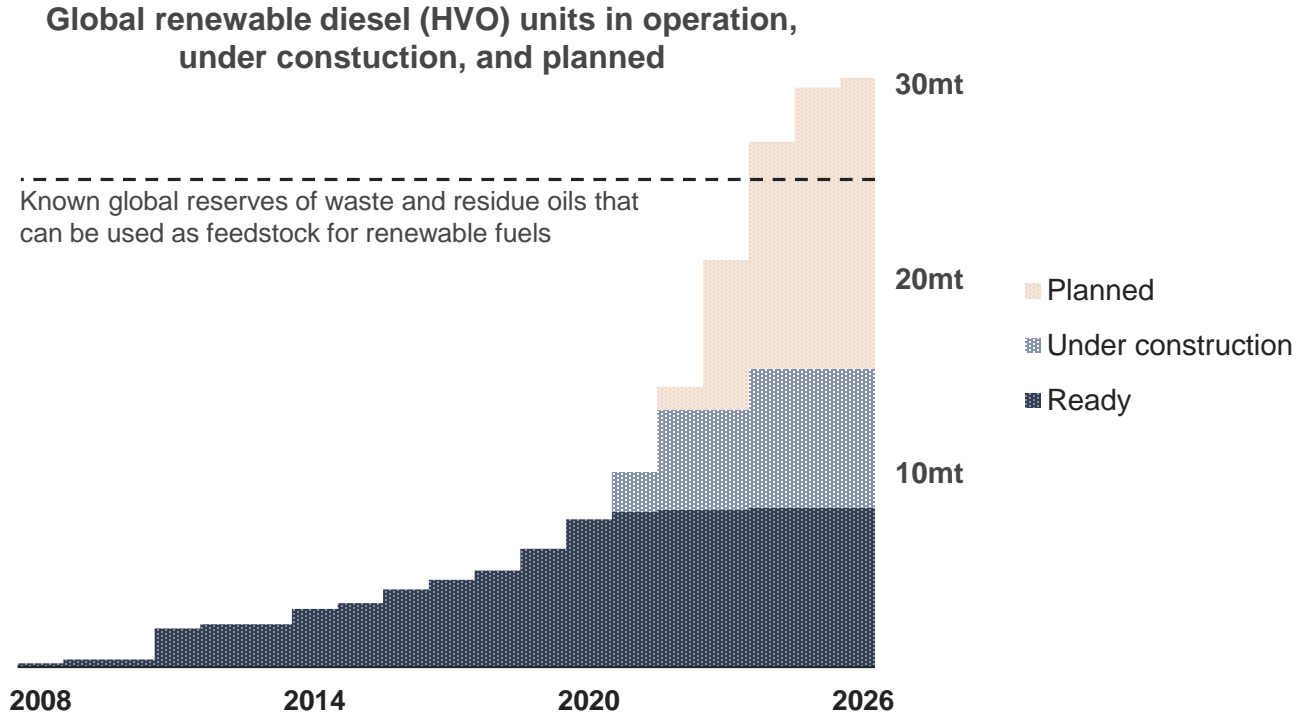


# Beyond Fossils

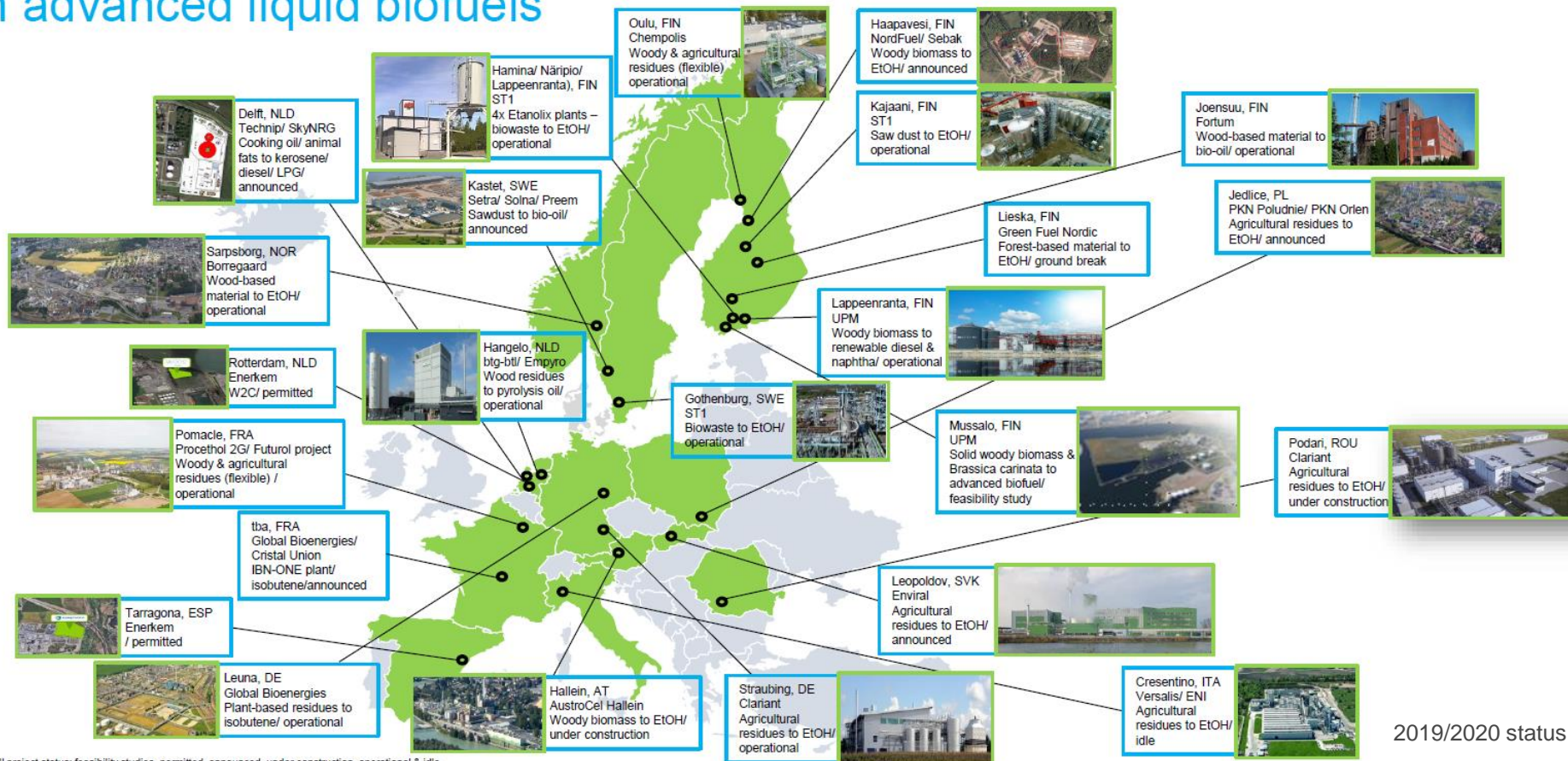
## Liquid fuels in the bio-economy

Marko Janhunen, UPM  
ReFuels Week

# Global renewable diesel (HVO) capacity grows rapidly – new sustainable feedstock solutions needed



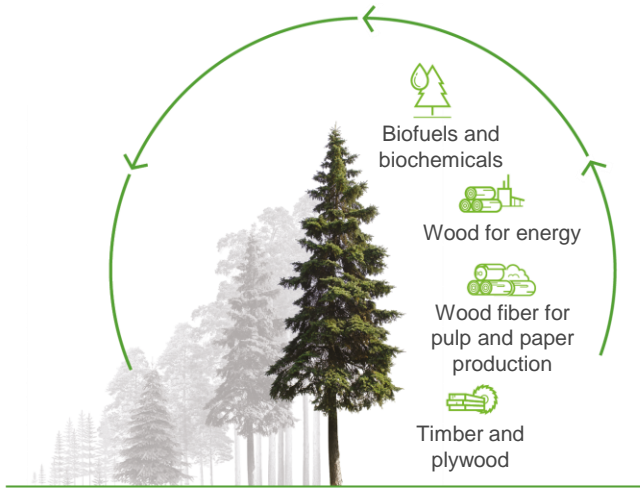
# Excellent industrial basis to build on: recent investments in the EU in advanced liquid biofuels



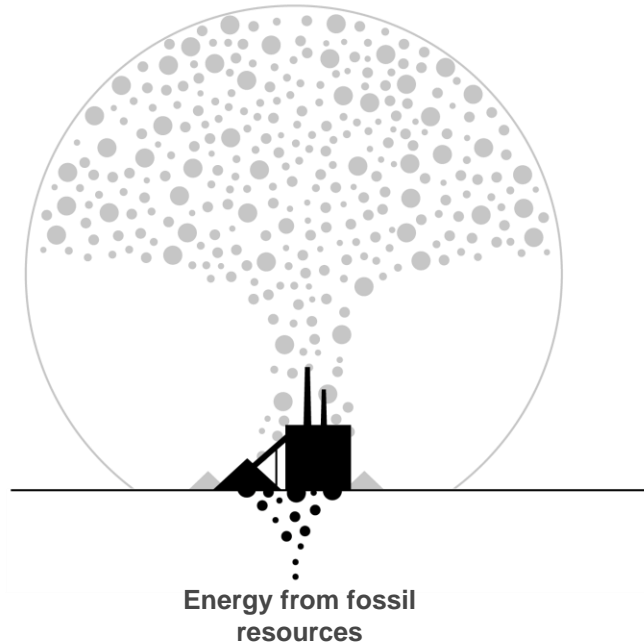
# Bioeconomy offers a sustainable alternative to fossil-based economy



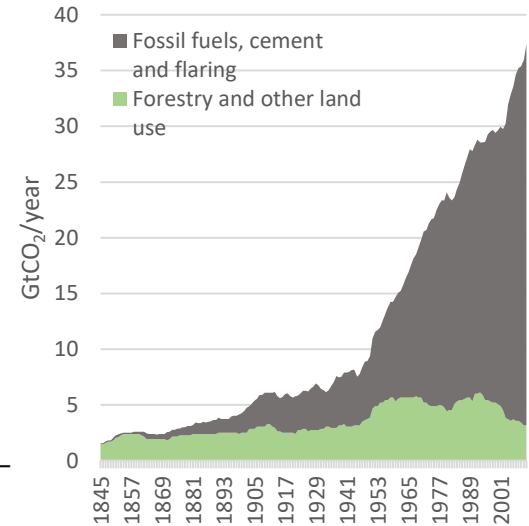
Biomass use is not increasing CO<sub>2</sub> to carbon cycle



Use of fossil resources increases CO<sub>2</sub> amount



Use of fossils has increased global CO<sub>2</sub> -emissions



Source: IPCC AR5

# Efficient use of wood – nothing goes to waste



Fibres to **pulp and paper**

Fibres to **biofibrils and biocomposites**

Logs for **sawn goods and plywood**

Lignin, cellulose and hemicellulose to **biochemicals**

Extractives to **renewable diesel and naphtha or biochemicals**

Bark and branches to **advanced biofuels or energy**

# UPM has an excellent position for the attractive molecular opportunities



Huge and growing fuels and chemicals markets



Increasing demand for sustainable alternatives



Leading forest industry platform, competitiveness and expertise



Disruptive innovations & long-term perspective



Biofuels



Biochemicals



UPM **BIOFORE** BEYOND FOSSILS

| © UPM



**50 million = 100**  
trees planted / year                      trees / min







# UPM **BIOFORE** **BEYOND** FOSSILS

**INSPIRED** by the limitless opportunities of bioeconomy  
**DELIVERING** renewable and responsible solutions  
**INNOVATING** for a future beyond fossils

