

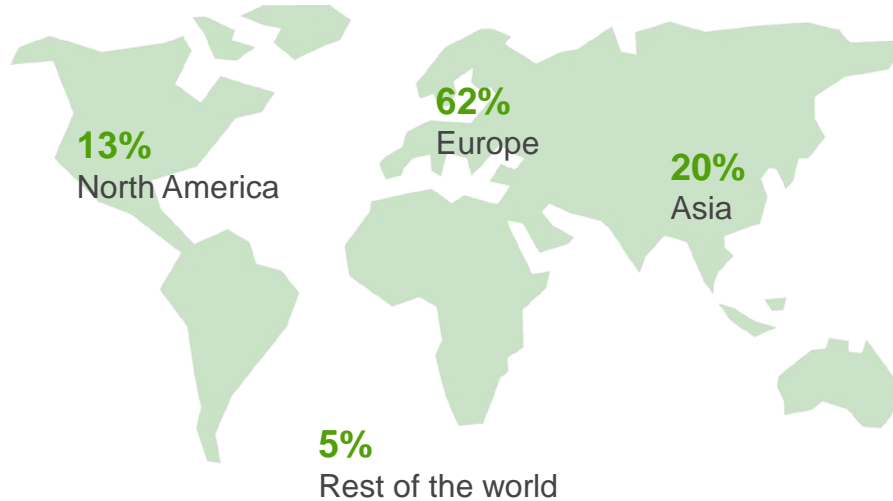
UPM's Potential Application for Innovation Fund

Brussels 18 June 2019
Stefan Sundman, UPM

Global businesses – local presence

UPM's sales by market 2018

EUR 10 billion



54
production plants
in **12** countries



19,100
employees
in **46** countries

12,000
customers
in **120** countries

90,000
shareholders
in **35** countries

25,000
b-to-b suppliers
in **75** countries

Sustainable and safe products for everyday use



TIMBER

for construction

ELECTRICITY

everywhere

PULP AND BIOFUEL BASED MATERIALS

for packaging, transport,
storage and hygiene
products

PUBLICATION PAPERS

for reading and
advertising

LABEL MATERIALS

for food packaging,
drink bottles and for
communicating information

SPECIALTY PAPERS

for food packaging

LABELS

for food products

WOOD MATERIALS

for construction
and design features

OFFICE PAPERS

for printing

WOOD MATERIALS

for furniture and
the home

UPM is considering an investment opportunity in biochemicals in Germany

BIOREFINERY PROCESS

STEP 1: SUGAR PULPING
Disintegrating wood into sugars, lignin and green energy

STEP 2: CHEMICAL CONVERSION
Conversion of sugars into targeted biochemicals



40%
Cellulose

30%
Hemi-cellulose

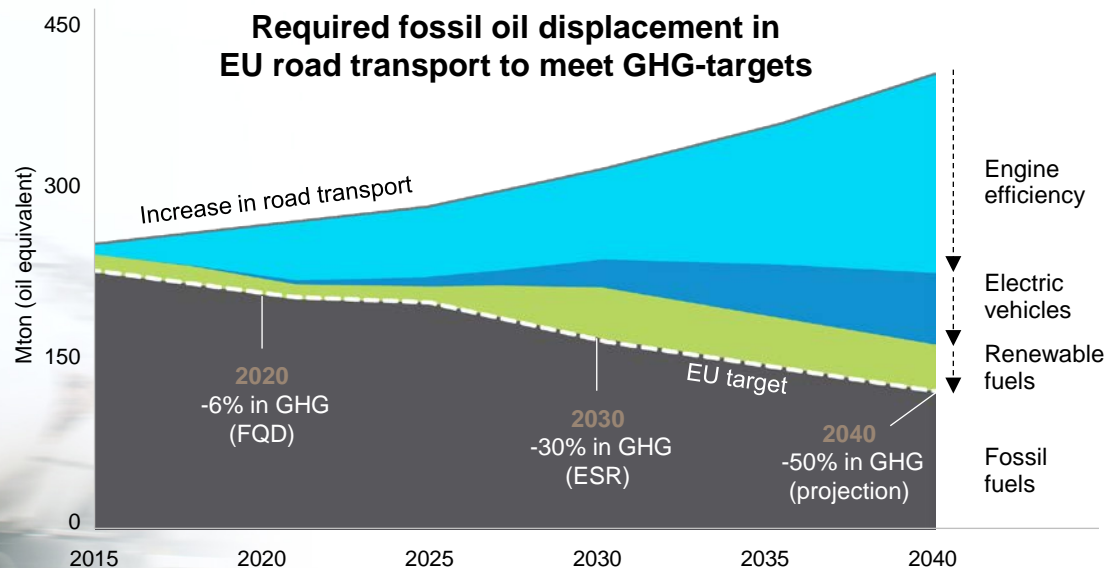
25%
Lignin



UPM INVESTIGATES NEW OPPORTUNITIES IN ADVANCED BIOFUELS

UPM **BIOFORE** - BEYOND FOSSILS

Biofuels are needed in road transport to meet EU's GHG-reduction targets



GHG-reduction targets calculated vs. reference year 2005 (2020 -6% FQD, 2030 -30% ESR, 2040 -50% proj.)

Source: UPM analysis based on Bloomberg and WoodMackenzie

UPM Kaukas, Lappeenranta, Finland. Established 1892

Industrial evolution of the world's most versatile forest industry integrate



UPM Lappeenranta Biorefinery

The world's first biorefinery
producing wood-based
renewable diesel and naphtha

179M€

UPM
investment

Over

100,000

t/a production
capacity

-80%
CO₂

250

Direct and
indirect
employees

200

UPM patents and
applications

UPM studies the feasibility of possible Kotka Biorefinery



UPM is studying biofuels development opportunities for a possible biorefinery in Mussalo, Kotka, in south-eastern Finland



The proposed **second UPM biorefinery** would

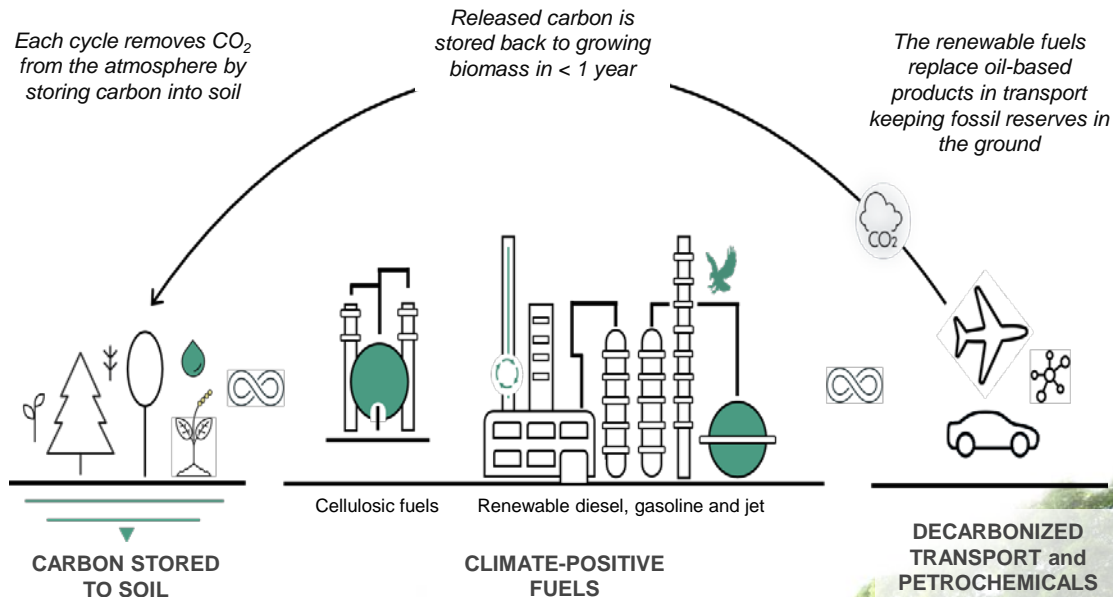
- produce approximately 500,000 tonnes of advanced biofuels for transportation
- **use several new sustainable feedstocks**, e.g. solid wood biomass and *Brassica carinata*
- use **conversion of solid biomass and hydrotreatment technology**
- be located in Kotka, Mussalo – the area of dismantled coal-fired power plant

UPM's POTENTIAL NEW KOTKA BIOREFINERY

UPM Biofuels Growth based on strengths of UPM ecosystem



- This investment would be first of its kind
 - o New novel concept
 - o Combines several types of sustainable feedstock, solid and liquid
 - o Largest investment globally into producing renewable diesel from solid biomass residues
 - o Would also be using brassica carinata, a non-food winter crop with high GHG reduction potential
- UPM considers the viability of Innovation Fund as an investment instrument to promote new innovations and transport decarbonization



UPM **BIOFORE**
BEYOND FOSSILS

