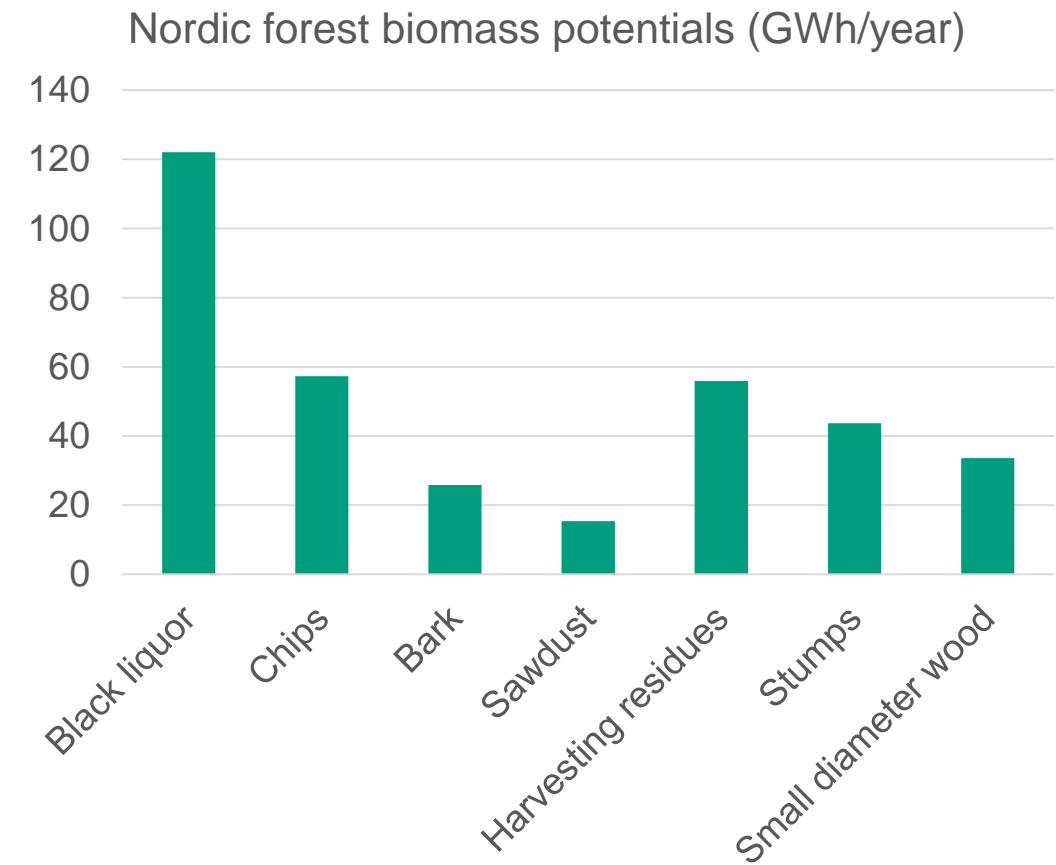
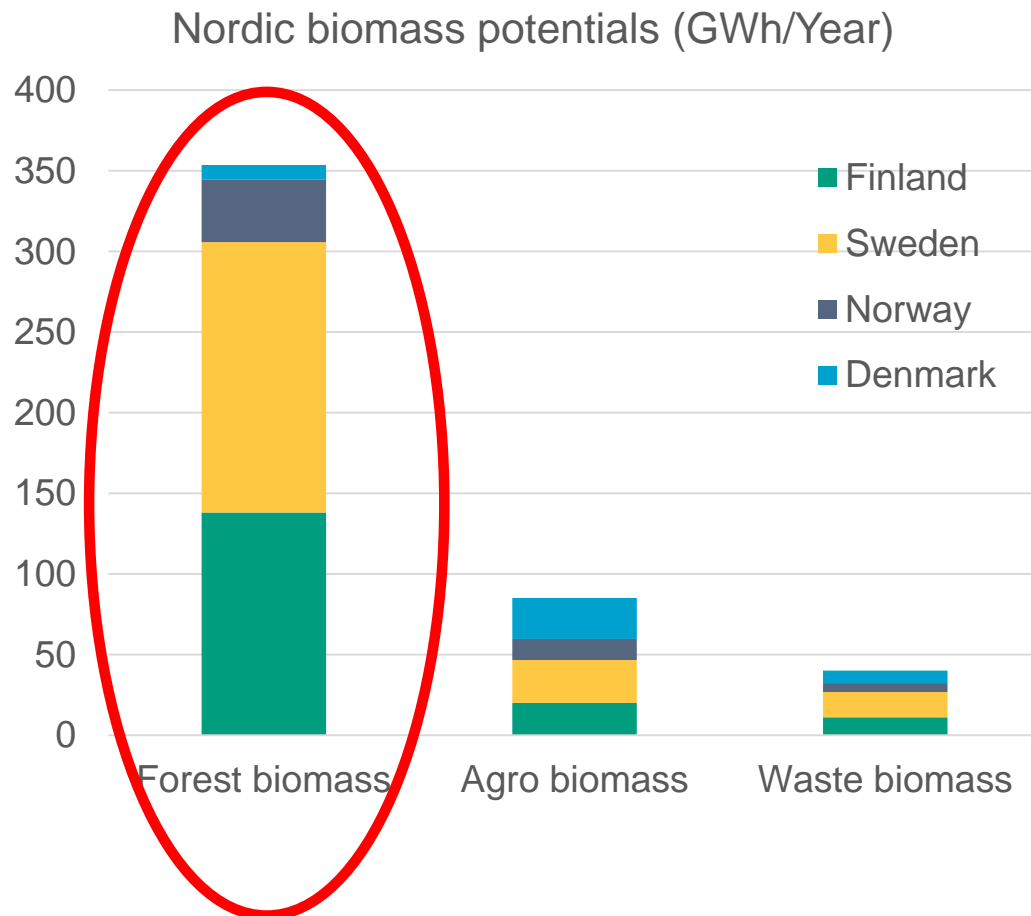


Biofuel in the future fossil-free energy system: The Nordic perspective

Building a sustainable European biofuel industry
Gothenburg, 05.11.2019

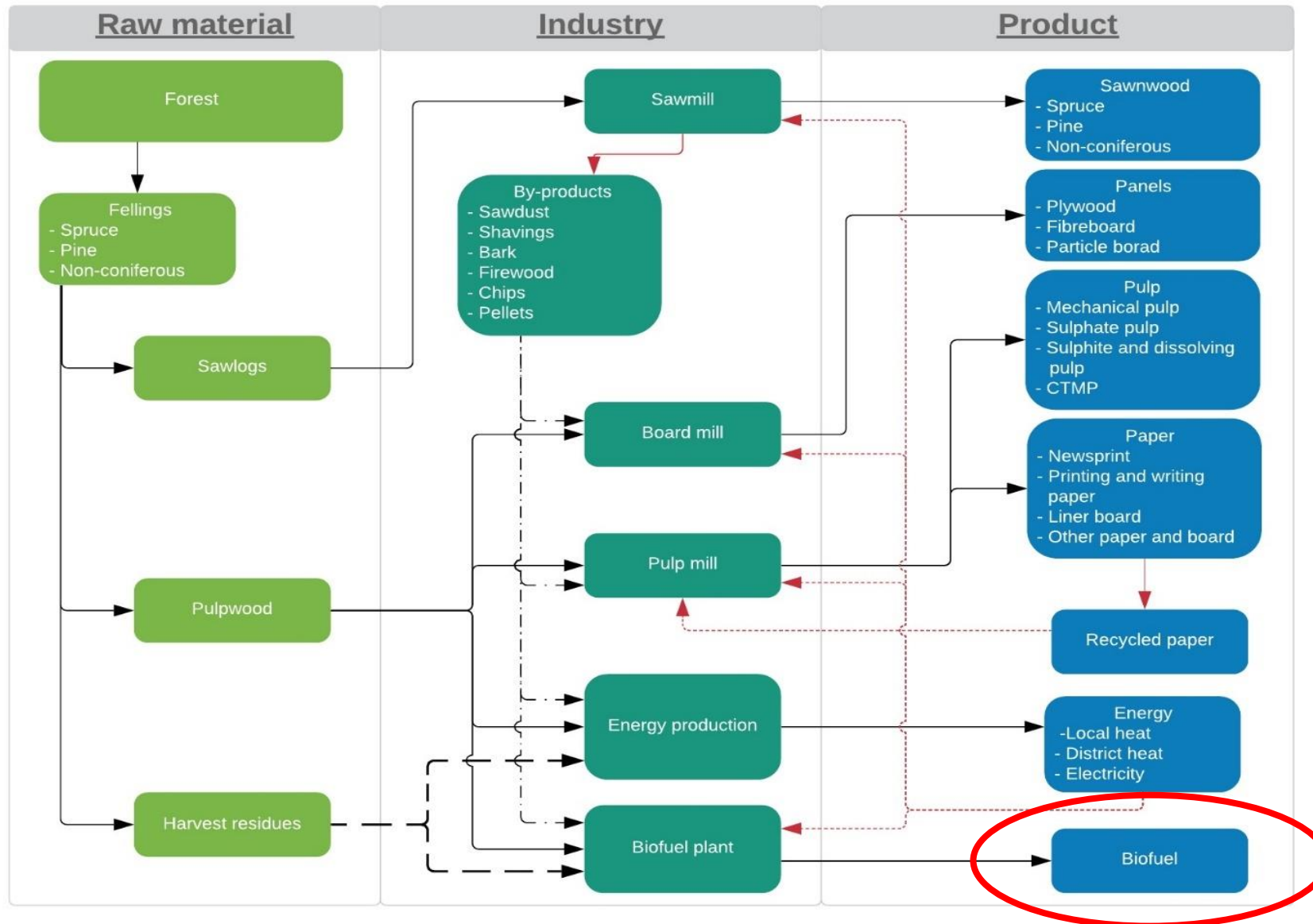
Torjus Folsland Bolkesjø
Professor, Norwegian University of Life Sciences

THE NORDIC BIOMASS RESOURCES

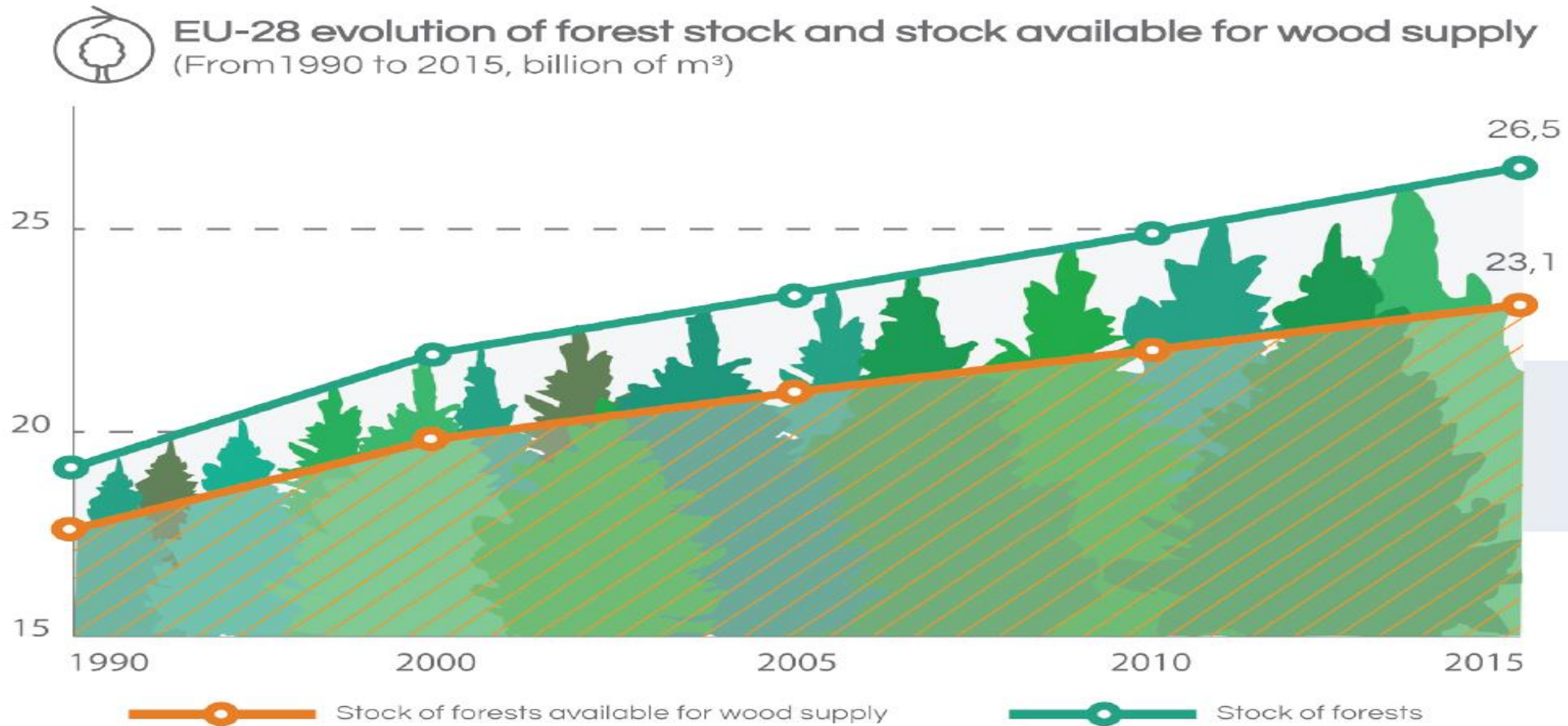
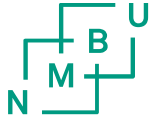


Source: Econ Poyry and Nordic Energy Research (2018)

WOOD-BASED BIOFUEL IS ONE COMPONENT IN A LARGE RENEWABLE-BASED VALUE CHAIN

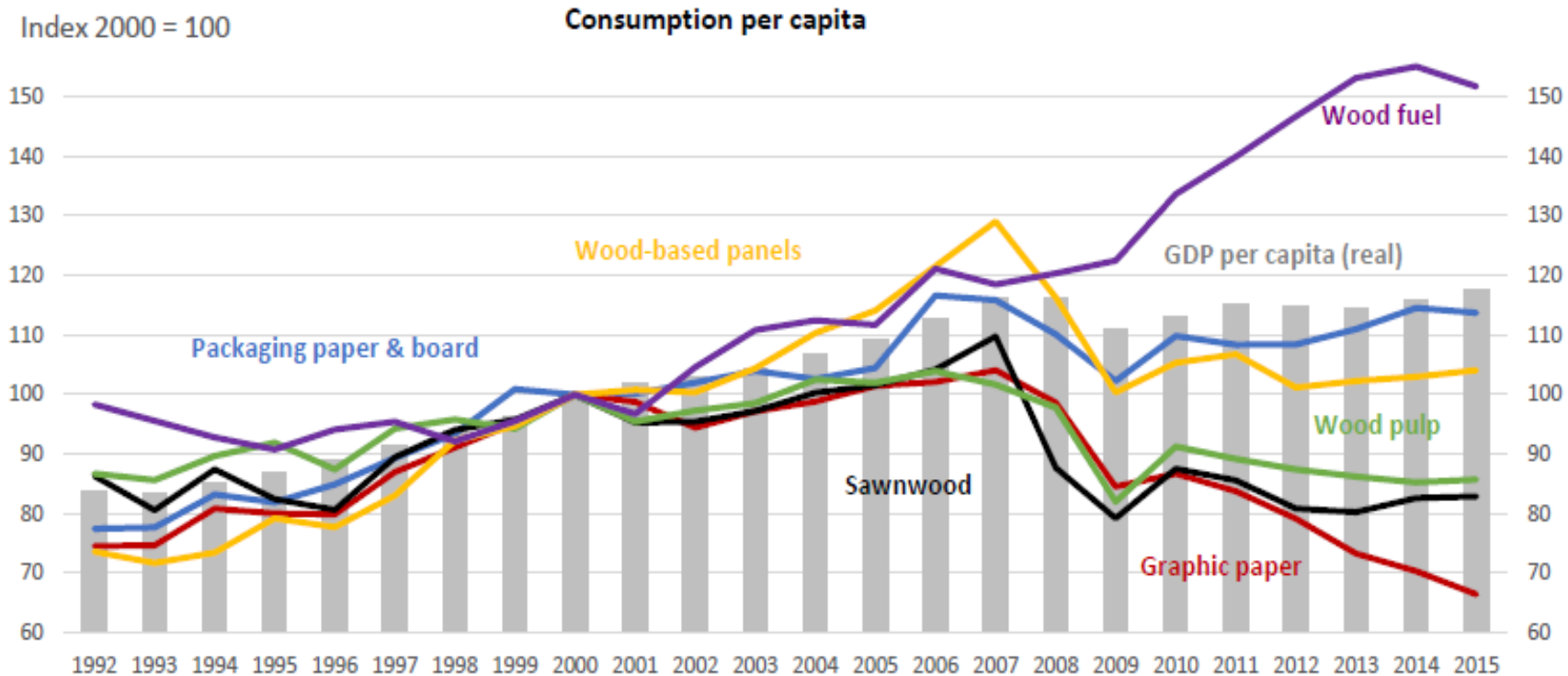
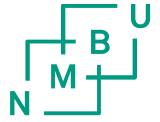


FOREST STOCK AND STOCK AVAILABLE FOR WOOD SUPPLY INCREASES



Source: Eurostat

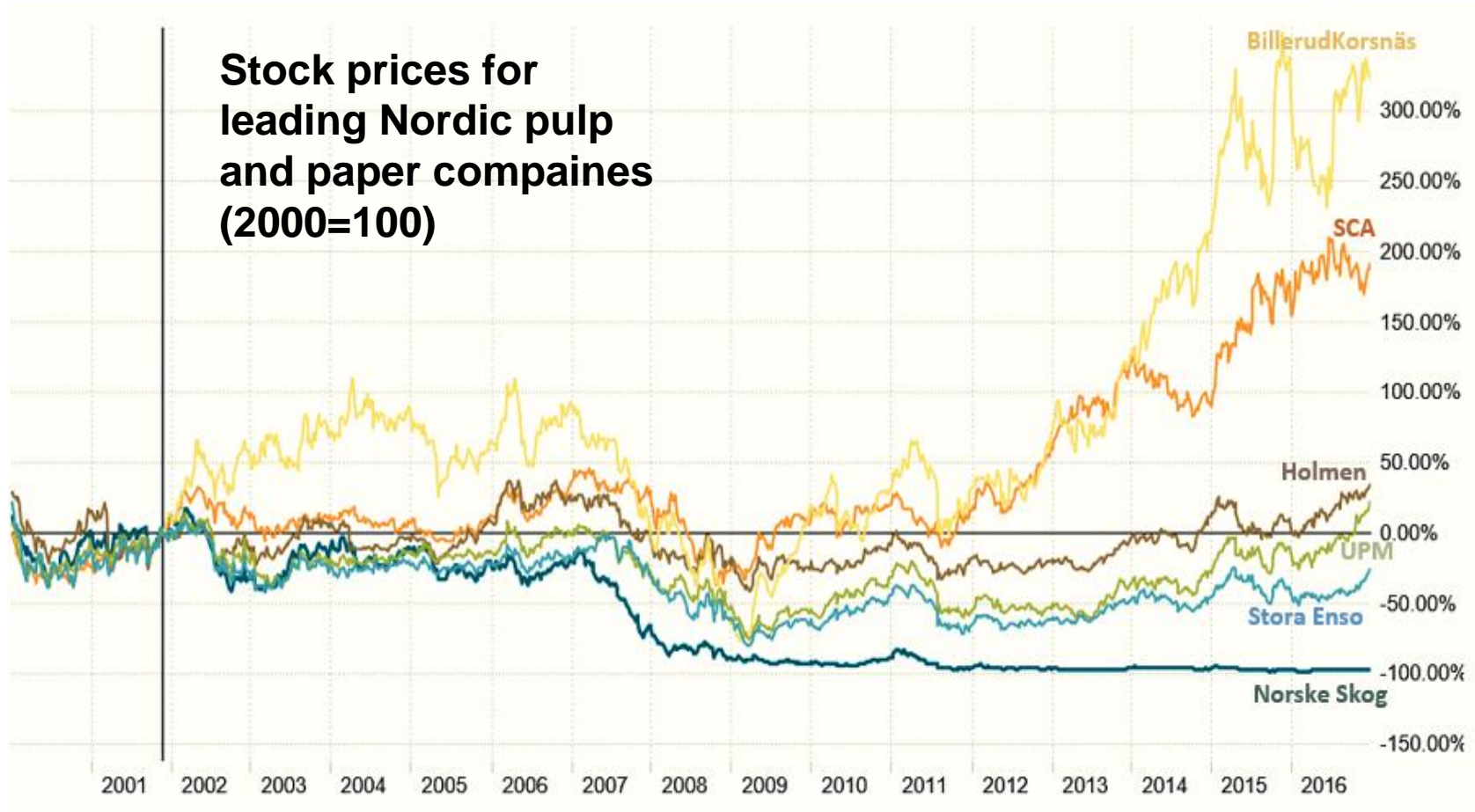
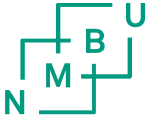
EUROPEAN CONSUMPTION OF PRINTING PAPER IS DECLINING



(Data: FAOSTAT, World Bank, here Sec. 3.9: Jonsson, Hurmekoski, Hetemäki, Prestemon)

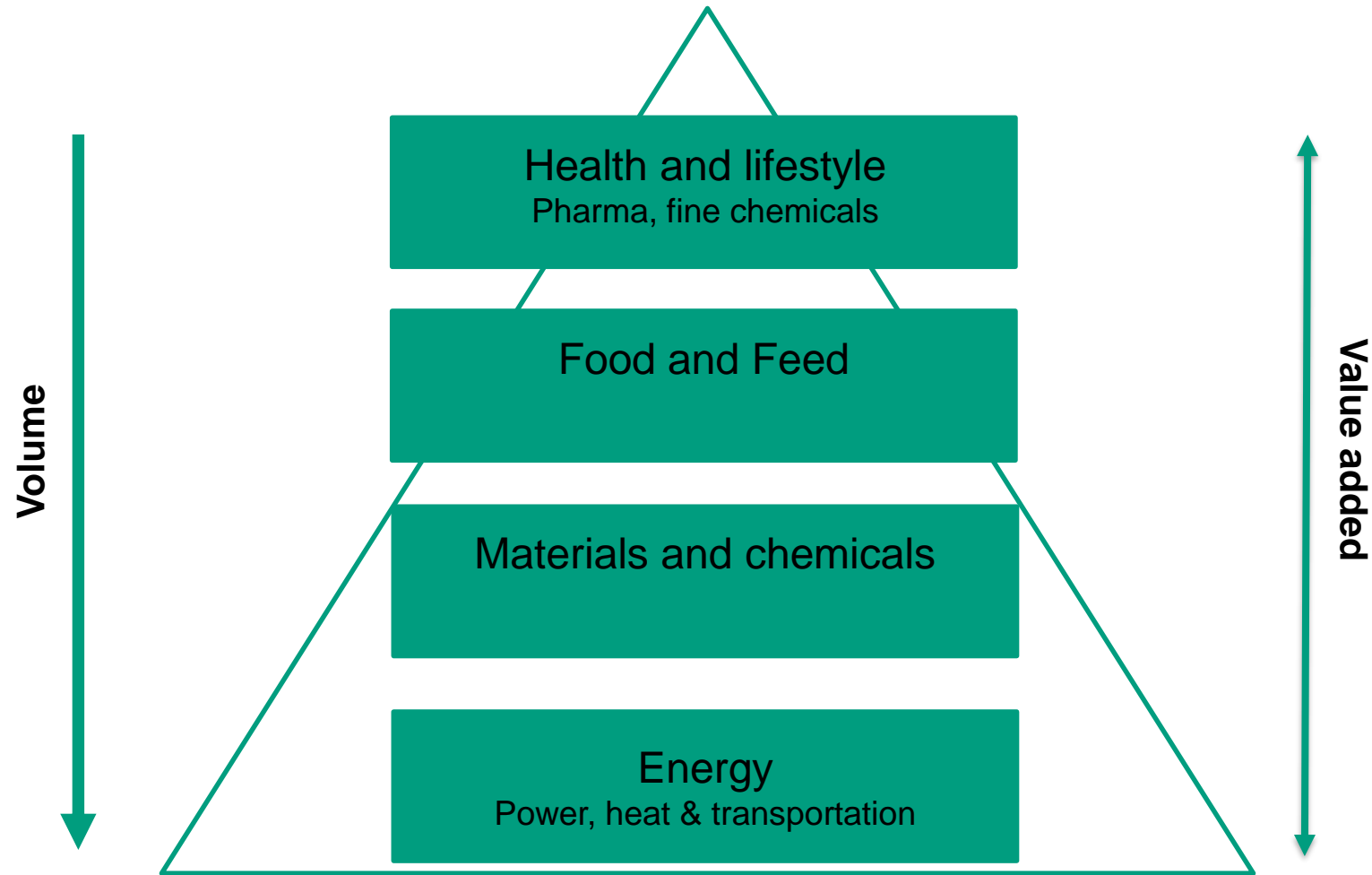
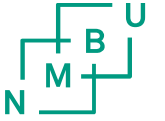
NORDIC FOREST INDUSTRIES

– DIFFERENT STRATEGIES AND DIFFERENT OUTCOMES



Source Midttun & Piccini, 2018

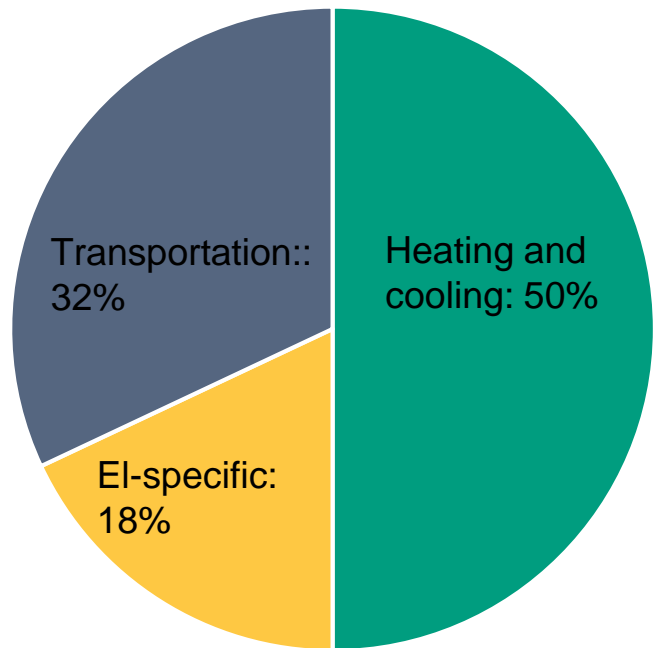
NEW FOREST PRODUCTS ENTERING THE MARKET?



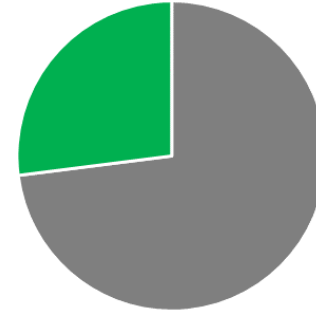
A FOSSIL FREE EU ENERGY SECTOR: STILL MAJOR CHALLENGES



EU energy
consumption

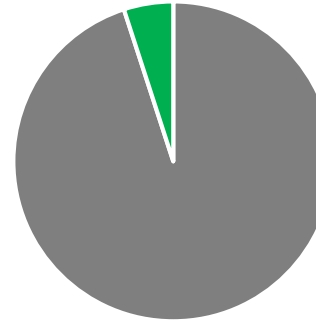


Renewable
share: 27%



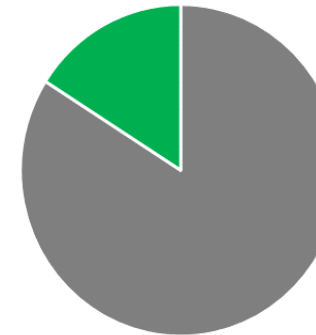
Electricity-
specific

Renewable
share: 5%



Transportation

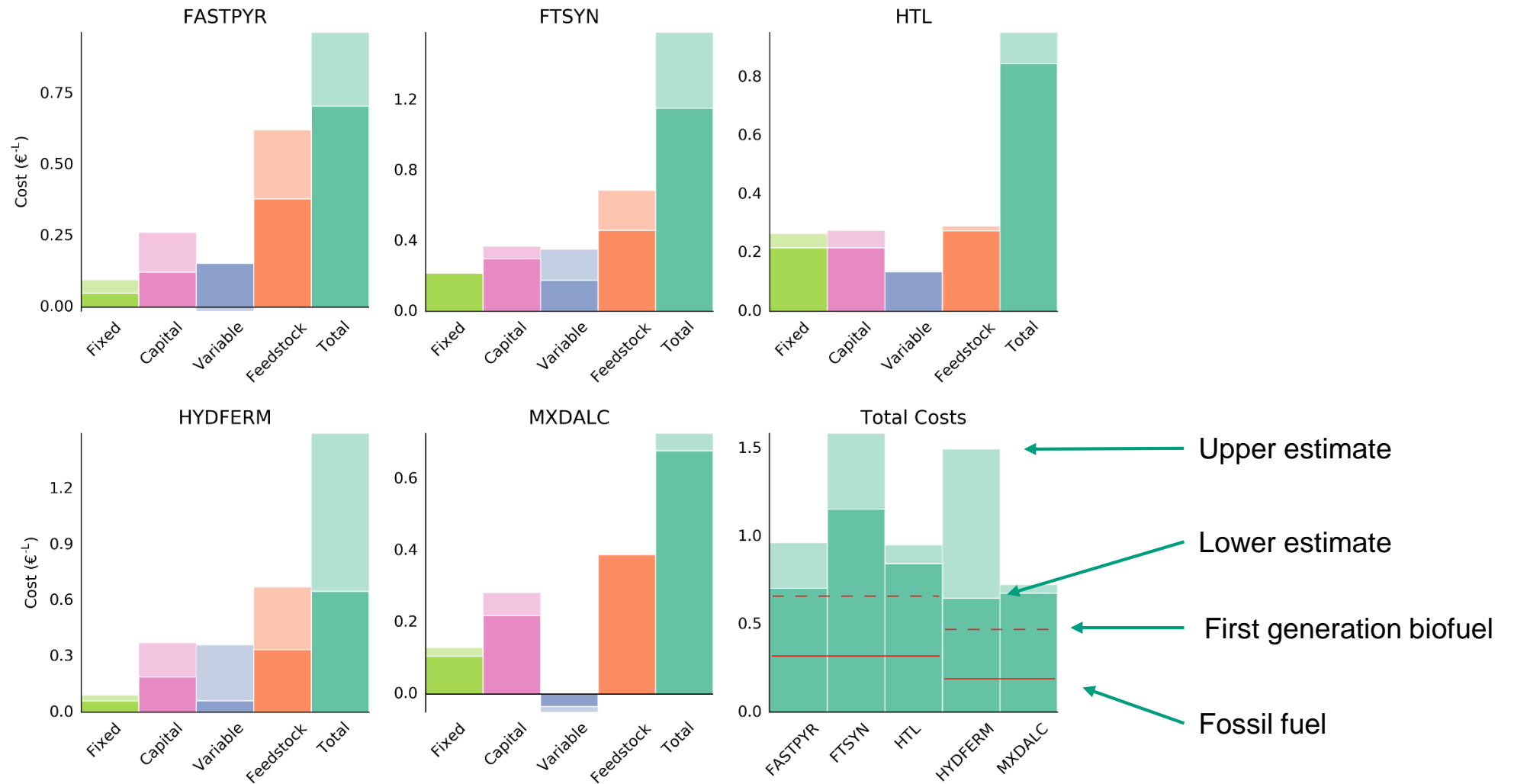
Renewable
share: 16%



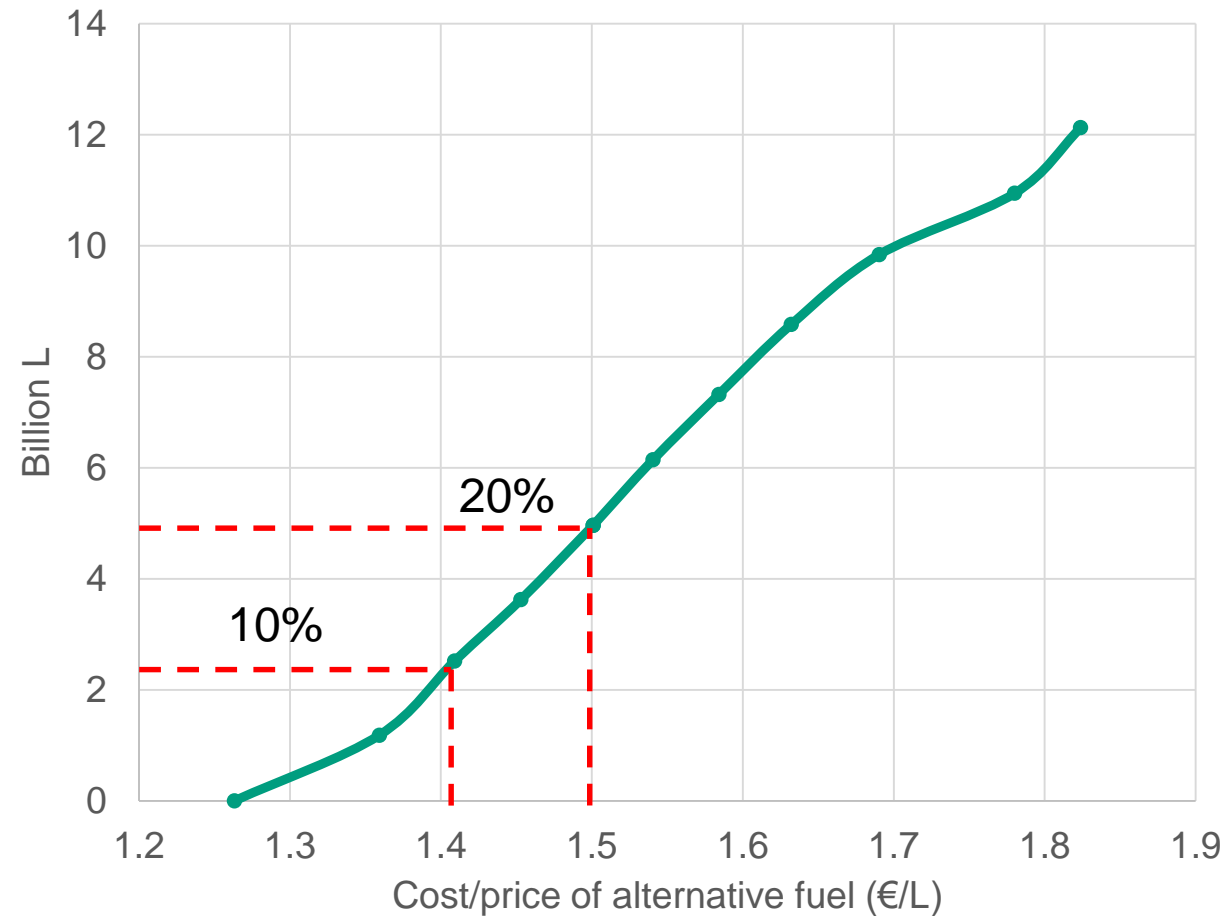
Heating
and
cooling

BARRIER OF WOOD-BASED BIOFUELS: THEIR COST

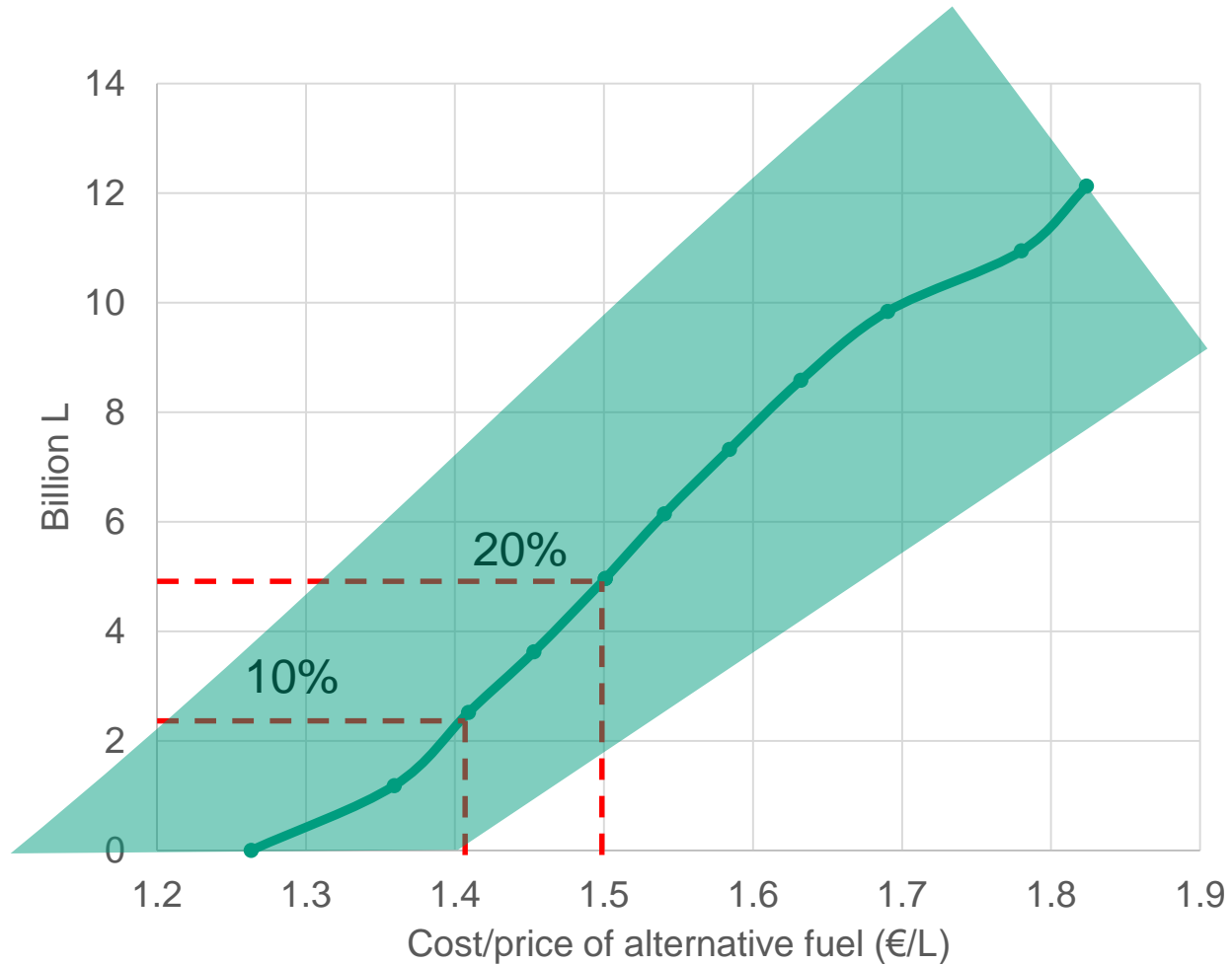
Cost estimates from the literature



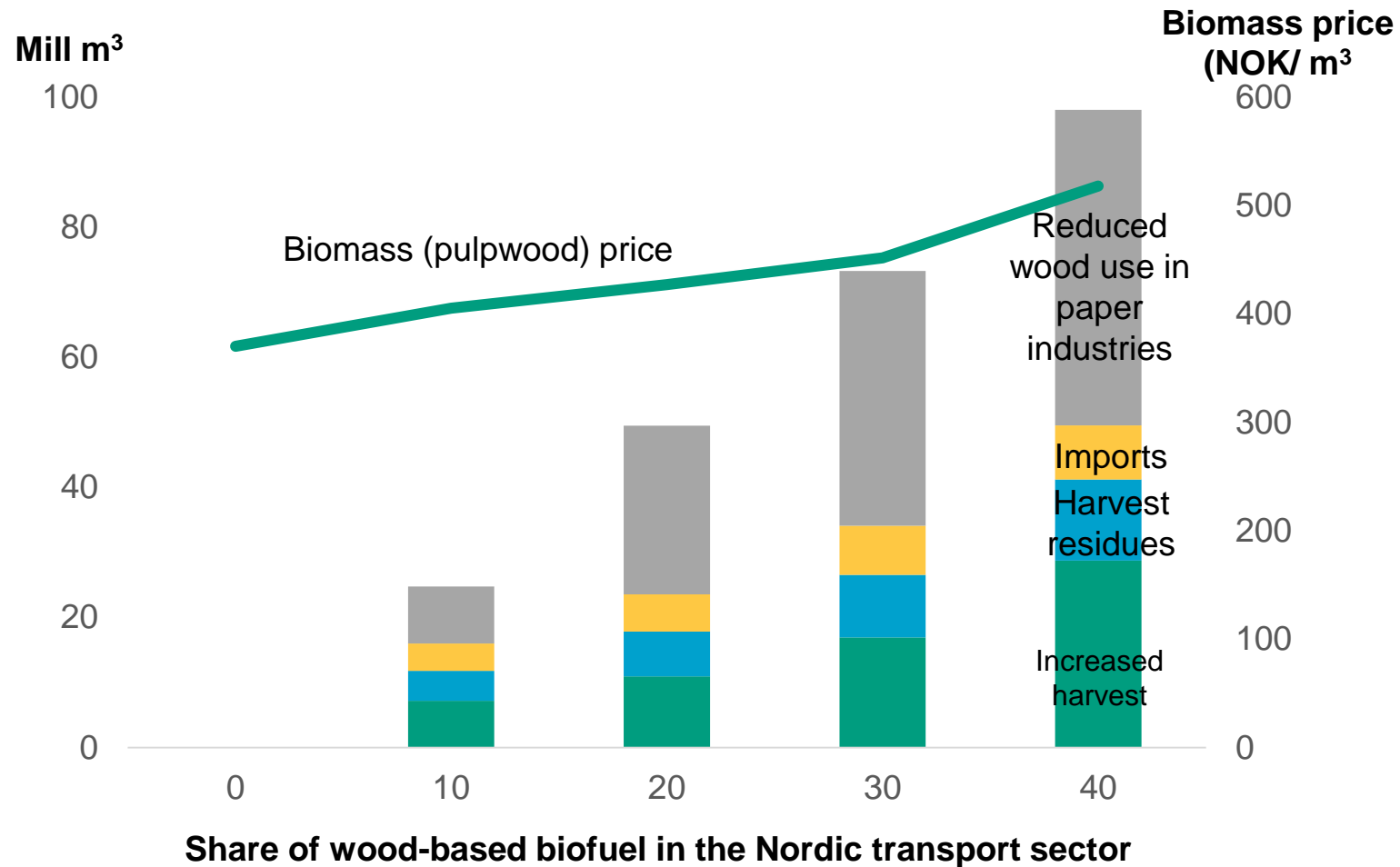
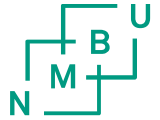
MODEL RESULT: PROFITABLE WOOD-BASED BIOFUEL VOLUMES



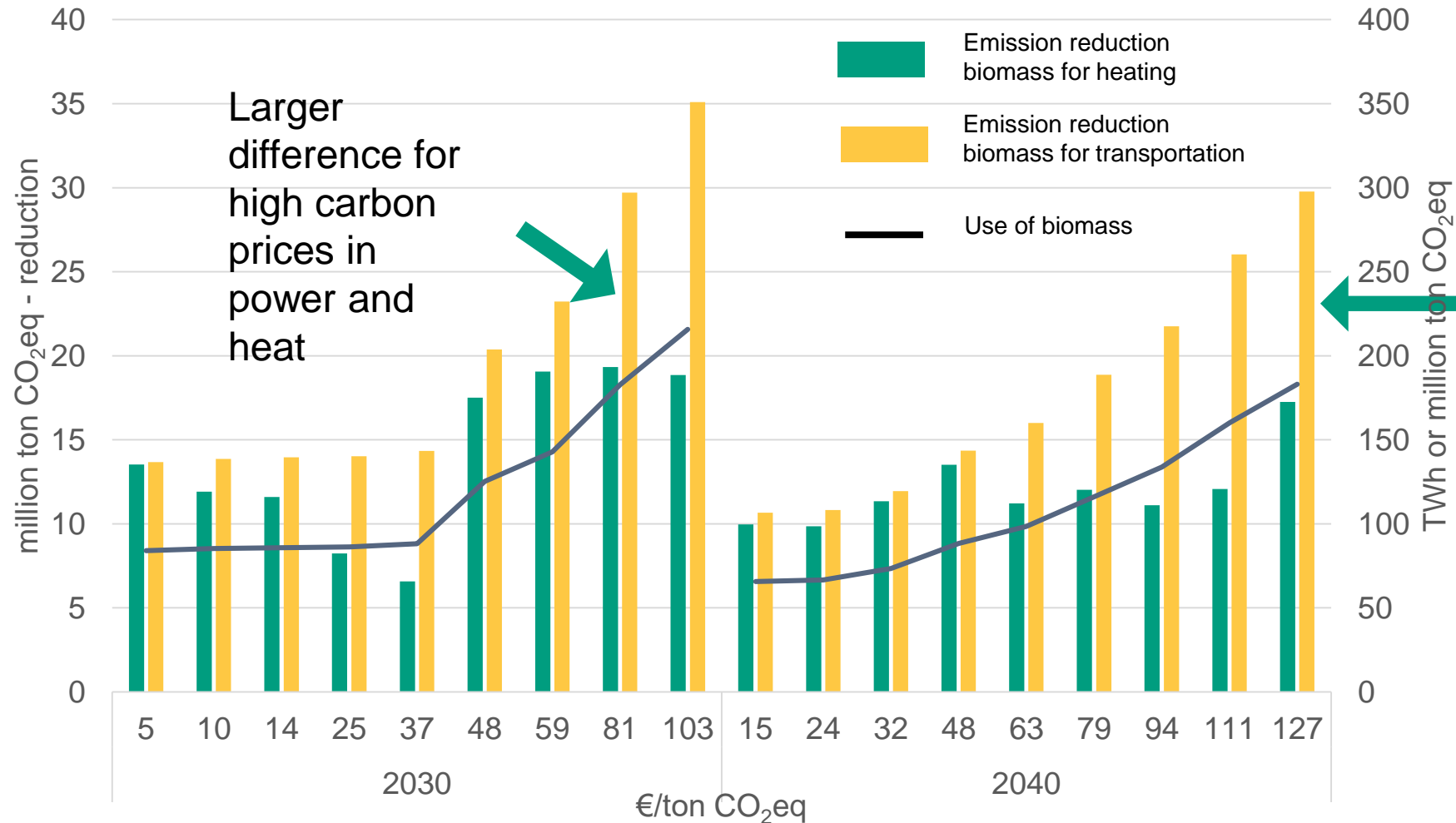
MODEL RESULT: PROFITABLE WOOD-BASED BIOFUEL VOLUMES



Model result: IMPACTS TO THE FOREST SECTOR VALUE CHAIN



Preliminary model results: Emission reductions by using biomass for heat versus biofuel



Larger difference for high carbon prices in power and heat

THANK YOU!

Contact: torjus.bolkesjo@nmbu.no

