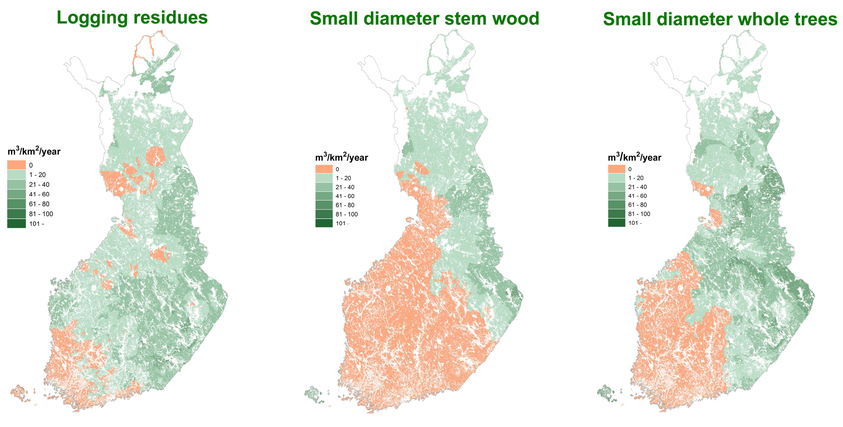
Sustainable Bioenergy Solutions for Tomorrow

COST-EFFECTIVE BIOMASS TERMINALS

JYRKI RAITILA & MATTI VIRKKUNEN, VTT

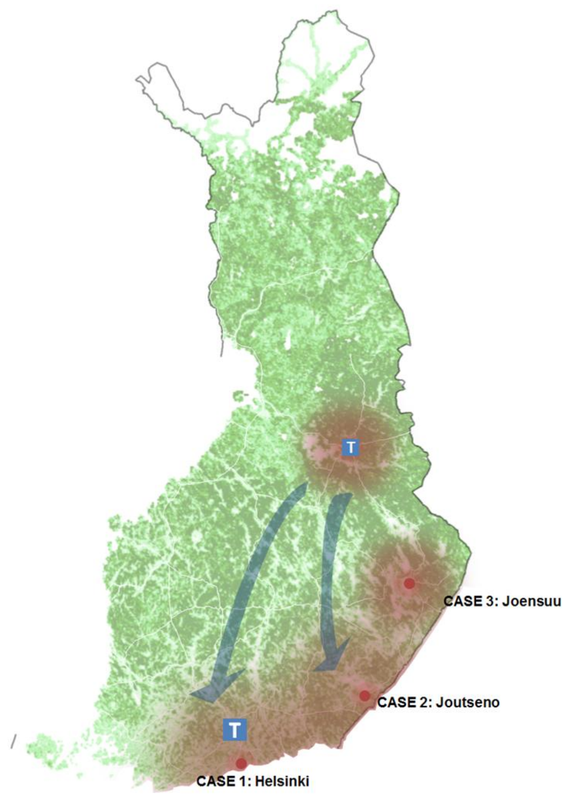
WHY TERMINALS?



- Demand for fuelwood is increasing in southern Finland and in some industrial cities with biorefinery investment plans
- Most of the available feedstock in northern and northeastern Finland

BENEFITS

- More stable and secure supply throughout the year
- Regional biomass procurement can be widened
- Large supply volumes by one operator
- Demand for different supply machines can be evened out
- Better quality can be achieved

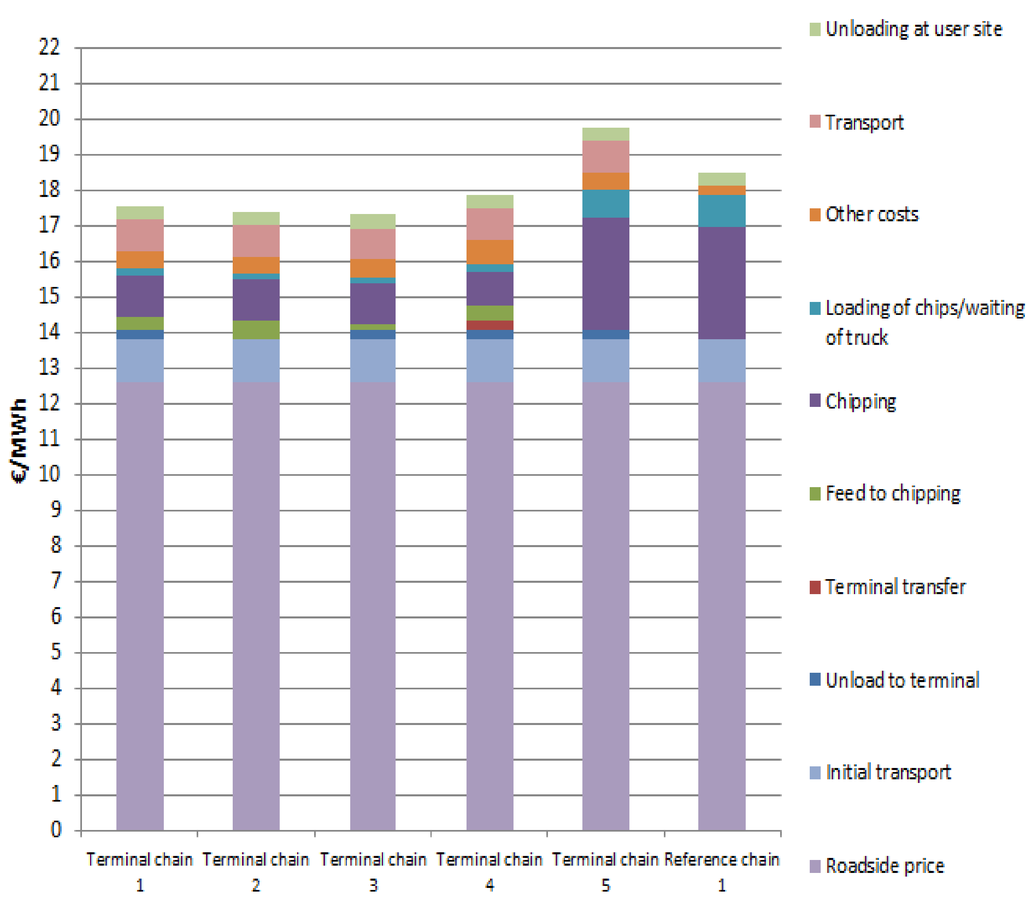


An example of long haul supply of forest fuels through a satellite terminal. Source: LUT

MORE EFFICIENCY

Biomass fuel terminals broaden the spectrum of available supply options by offering cost-effective large-scale biomass storage and processing options for securing the fuel supply in all conditions. On the other hand, additional handling and operation times often add costs to supplied wood compared to direct supply chains. However, if fuelwood volumes are high, terminal supply can be more cost-effective than direct supply with the following assumptions:

- Fuelwood volumes >150 GWh/a and mainly delimbed stemwood
- Road transport distance at least 80 km
- Comminution is done with electricity powered machines
- Effective material handlers or semi-automated feeders are available or wood is fed directly from truck to comminution machine



A supply cost example of different fuelwood (stem wood) supply chains. In chains 1-4 comminution is done with electricity powered machines while in chains 5 and the reference chain (direct supply) comminution is done with mobile machines. In chain 1 the feeding of wood to the chipper is done with a material handler, in chain 2 from trucks directly, in chain 3 with a semi-automated feeder, and in chain 4 with a material handler from a seasonal wood storage.

Contacts: **jyrki.raitila@vtt.fi; matti.virkkunen@vtt.fi**