

Fresh Woodchip Concept

Dr. Lauri Sikanen, Principal Scientist, Group Manager

Dr. Juha Laitila, Senior Scientist



Co-funded by
the European Union

INTRO

Typically, energy wood has been **stored** for relatively **long times** at the roadside or terminals **to decrease the moisture** content and to balance supply. The main interest has been in **quality improvement gained by drying**. However, **costs and losses** of storing have been recently studied carefully. The main finding has been that it would be **better to burn wood as fresh as possible**, if it could be done technically.

In some cases, it is now possible. Fresh Woodchip Concept is the project, where the main corner stones and benefits of the approach will be identified.

In collaboration with



Co-funded by
the European Union

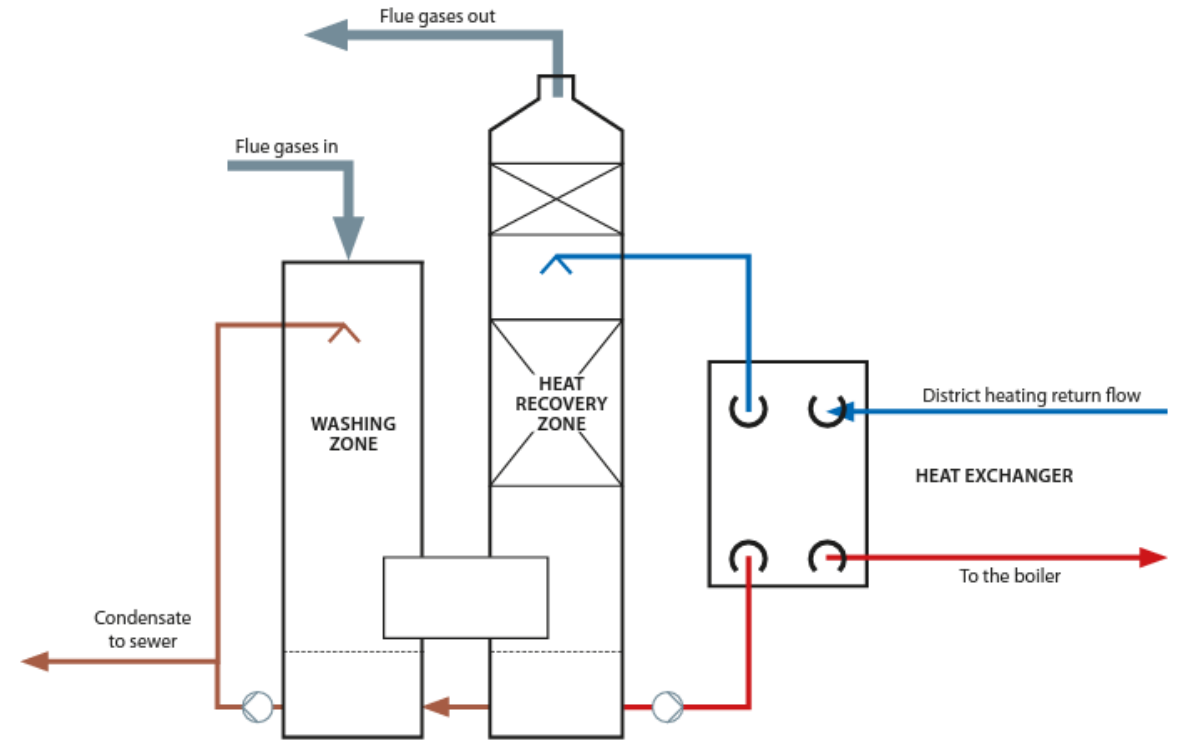


The Game Changer = Scrubber

Modern scrubbers can grab the heat “escaping” in the steam created when burning of “wet” fuel.

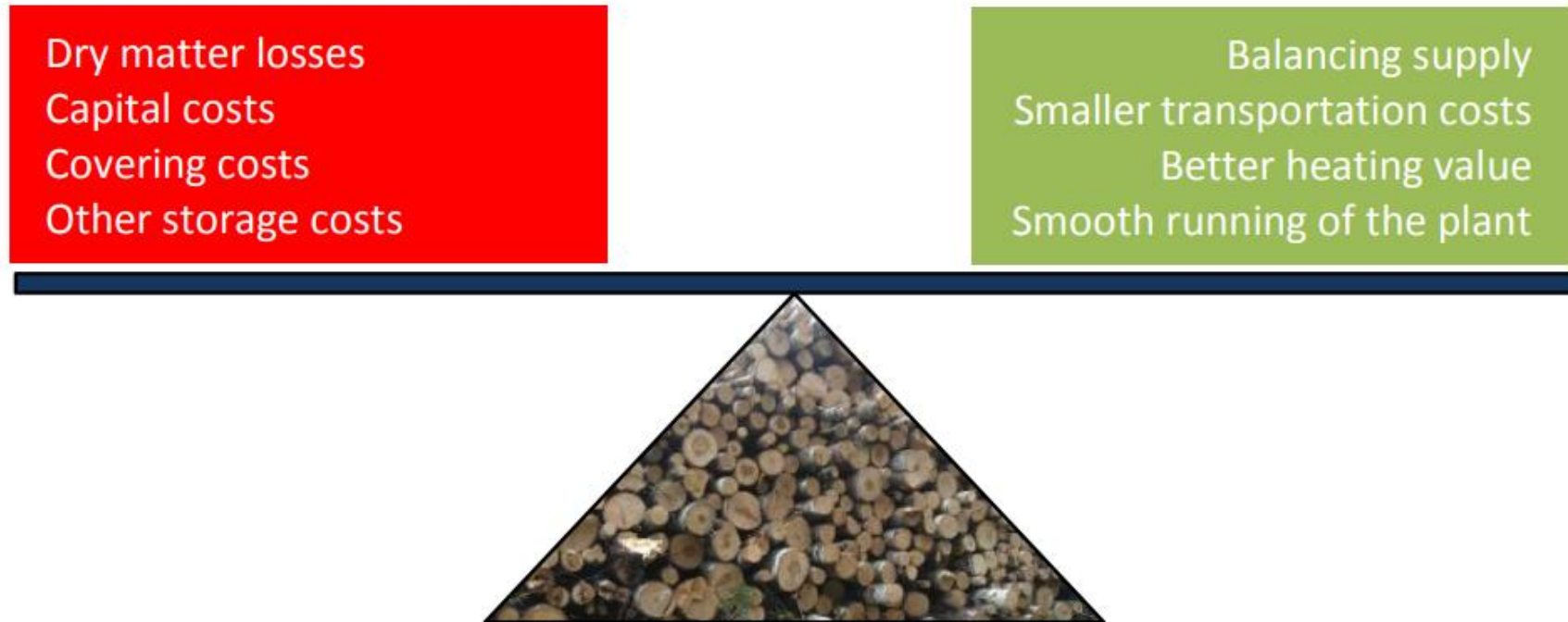
Of course they clean the flue gas too.

Technical development and changing business environment enable scrubbers in smaller and smaller plants.



Co-funded by
the European Union

The Energywood Storage Dilemma



Co-funded by
the European Union

What will be done in Fresh Woodchip Concept –project (FWC)

1. The report of the potential of energy efficiency increase in Eastern Finland by using FWC.
2. To describe technology development needs and supply chain redesign in transition to FWC.
3. To identify locations of energy plants most potential for updates.
4. To recalculate energy wood potential in Eastern Finland if FWC fully utilized



Co-funded by
the European Union

Fresh wood chip concept – Pros and Cons

Pros

Avoiding biomass losses during storing, chipping & handling (composting, fall off)

Remaining volatiles = increased energy value (and pyrolysis oil yield)

Fast rotation of storage – low interest rate costs and fast payback time for contractor

Avoiding fire risk in roadside storages

Reducing risks for harmful materials & stuff added during storing (causing problems in chipping and at the plant)

Avoiding cover material costs

Lower energy need in chipping

New opportunities for fluent logistics: use of data, new business models and division of work in supply chain

Lower particle emissions in combustion due to flue gas cleaning

Larger fuel potential when problems in fuel availability

Cons

Investments for heat recovery / flue gas cleaning in plant

Transportation of water: increased fuel consumption, lower max load (MWh)

Costs of modifications in combustion facilities: larger air channels, stronger materials for avoiding corrosion...)

Lower heating value / mass (LHV)

Possibly more handling problems with moist fuel in winter conditions

Lower peak capacity than when using dry fuel



Co-funded by
the European Union