

Info-sheet

SECURE-BIO-SUPPLY

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Solid biomass fuel storage cost calculation tool

In the project, a Microsoft Excel tool which can calculate the costs associated with storing different solid biomass fuels in Ostrobothnia, was developed. The user can choose between different common tree species and fuel types and specify a storage time of up to 36 months. Calculations can be performed for different fuel mixtures consisting of up to 5 fuels of the same type. The focus of the calculator is on the costs of

long-term storage of fuel. It considers investment costs rather than maintenance costs. The storage costs are calculated using a range of parameters input by the user. Parameter values and descriptions are given in the tool and the tool's manual.

Data input into the calculator:

- The height of the storage (meters)
- Storage shape factor

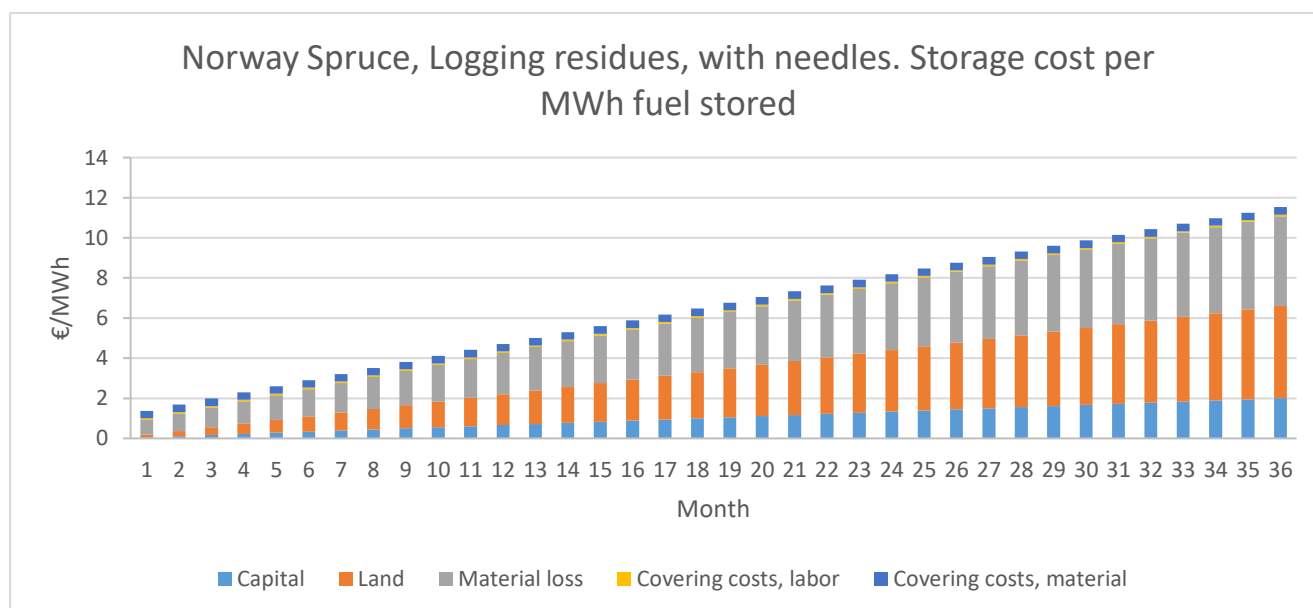


Figure 1. Example of result obtained from the calculator, storage cost per MWh.



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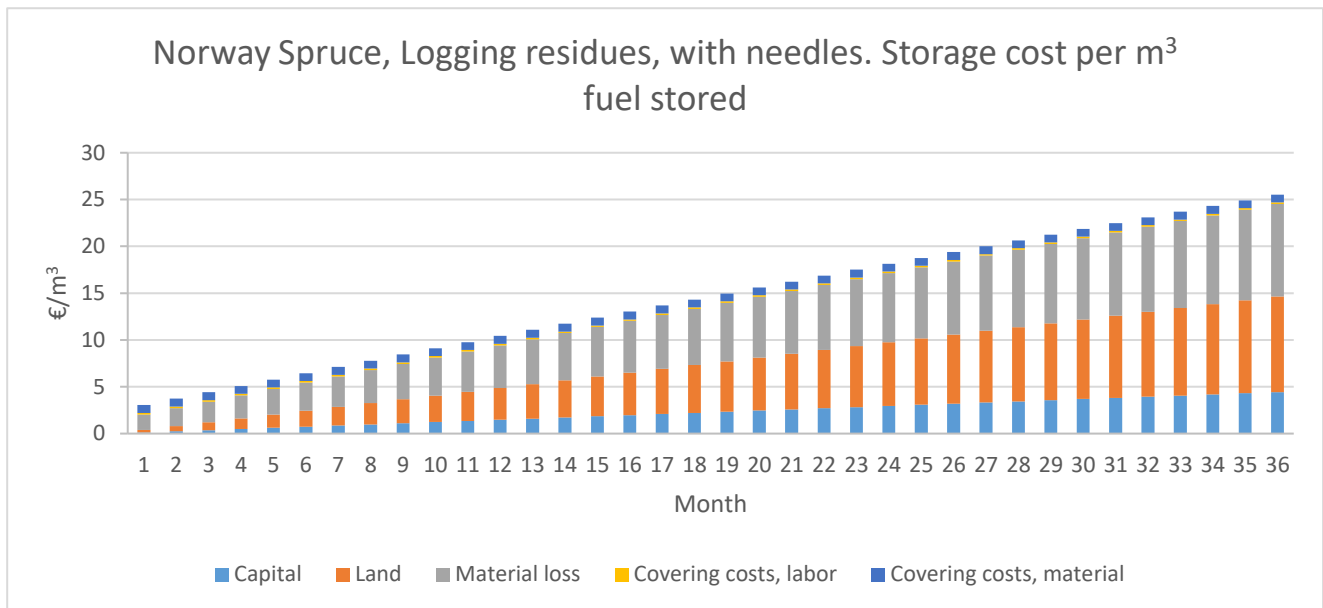


Figure 2. Example of result obtained from the calculator, storage cost per m^3 .

- Solid volume factor (solid-loose volume ratio, %)
- The value of the biomass fuel (€/m^3)
- Interest rate (%/year)
- Annual land cost (€/m^2)
- The fraction of land used for storage (%)
- Dry matter losses (%/month)
- Handling losses (volume, % lost of the original fuel)
- Storage time (up to 36 months)
- Tree species (e.g. birch, pine, spruce etc.)
- Fuel type (stemwood, chips, whole-trees etc.)
- Moisture content of the fuel (% wet basis)
- The coverage of the pile (plastic tarp, cardboard or no cover)
- The cost of covering the pile (labor

and material costs)

Costs of long-term storage

The storage costs accounted for in the calculator include:

- Capital cost. This is the interest paid for the fuel while it is stored, calculated based on the fuel's price.
- Land cost. The annual cost of land for different storage locations: forest roadside, at a terminal or at the end-user)
- Costs of material losses. Dry matter losses from degradation and handling losses.
- Covering cost. The costs of covering the biomass fuel windrows.

Read more:

The manual is available and the calculator is available upon request (both in Swedish).

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SECURE-BIO-SUPPLY- Development of Long-Term Storage of Solid Biofuels to Enable a Sustainable Energy Transition

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Project information:

Time period: 1.3.2024–28.2.2026

Project Owner: Åbo Akademi University

Project partners: Novia University of Applied Sciences, Finnish Forest Centre

Financier: EU-FRO Just Transition Fund (Ostrobothnia's FRO (JTF) call 2/2023.) The Regional Council of Ostrobothnia.

The goal of the **SECURE-BIO-SUPPLY** project is to analyse the challenges and opportunities that changes in long-term fuel storage can create in Ostrobothnia.



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