



## Biomass mobilisation through ash recycling

### Project partners



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### Pilot project concept

The project concept is to accomplish two actions in one, soil preparation and spreading fly ash. The first reason is to make the enterprise less vulnerable by the introduction of a new business, the second reason is to use the argument of securement of the supply of nutrients to the soil in order to get the possibility to purchase branches and tops from forest owners from clear cutting areas. The traditional way to secure the supply of nutrients to the soil is to leave the forest residues on the soil after clear cuttings or final fellings. When the ash is recycled back to forest land, it is normally in the shape of loose ash, which means that brush and vegetation close to the soil get a boost of nutrients. When using granules, the time for the leakage of the nutrients can be decided by choosing a certain radius of the granules.

### Partners

Skogsbränsle Småland AB business idea is to purchase, produce and sale of forest fuels, particularly in eastern Småland. The delivered volume is approximately 230 GWh wood fuel distributed as woodchips. Deliveries are made mainly to heating plants where several of them buy all the fuel they need from Skogsbränsle Småland AB. In addition to forest fuels, the company conducts trade with other timber and by-products to a lesser extent. The company also undertakes felling assignments, etc. Forest fuel Småland AB has five employees, three of them work full time. In addition to these five, they employ a number of subcontractors, e.g. forest companies and haulage companies. In its present form and ownership, the company has run since 2009. Xylem is the company of the consultant.

### Activities

The consultant compiled a financial model for the investment of granulation equipment. The company has been very active to organise meetings and to take part of seminars on the topic of fly ash. The reason for these discussions is to develop a concept for pelletizing / granulation and spreading, as well as development of business models with ash suppliers.

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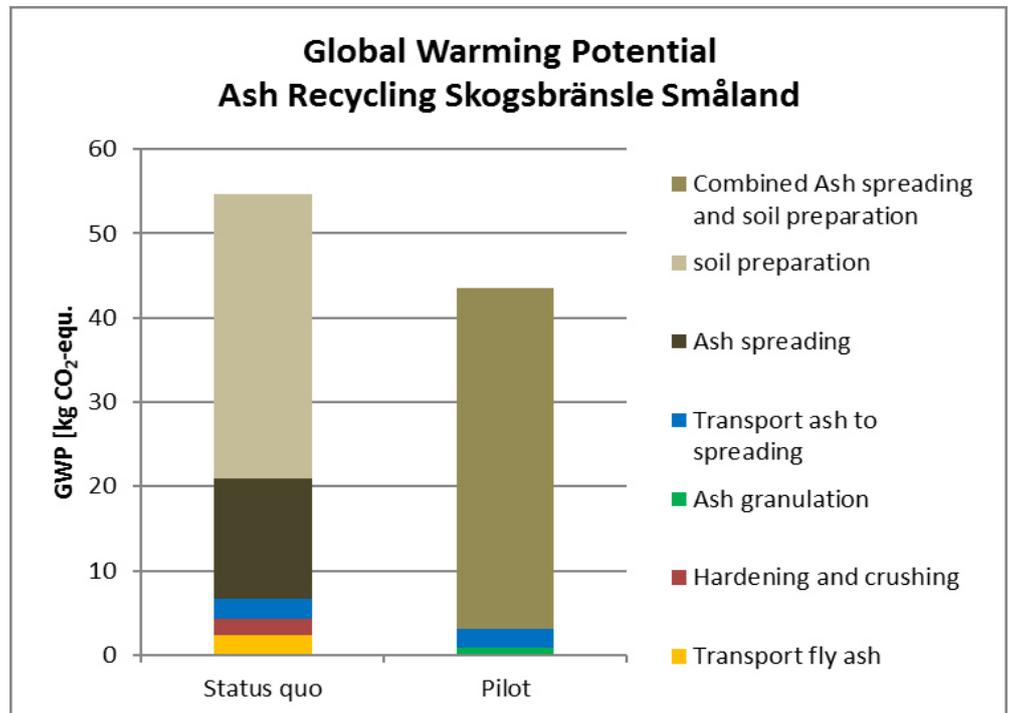
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Results

According to the calculations, the plant for granulation has to be in operation 24 days a week and 24 hours a day to be financially viable. It means that the equipment has to be fed with big quantities of fly ash. The big heat plants are located a long distance from each other, meaning that a big part of the ash has to be transported more than 100 km. The costs for transportation are getting higher and they need several long-term agreements with many ash producing companies. The calculations require that the granulation equipment is located to a heat boiler facility, in order to co-finance the technicians required for operation and maintenance. The costs for soil preparation and spreading is lower when they are accomplished at the same moment, in comparison to one by one, but this difference is much lower in comparison to the higher costs for granulation and transportations.



Photo: Johanna Wallin



LCA for various options according to the initiative of Skogsbränsle Småland. Source: BOKU

The new innovative way of granulation and spreading the granules at the same moment as the soil preparation is done, has lower global warming potential in comparison to carry these moments out the traditional way, according to an analysis from BOKU. See figure. In summary the business idea will decrease the carbon dioxide emissions, but on the other hand it is not financially viable.

Follow-up

The costs for transportations, the big number of agreements with ash suppliers and the unforeseen high costs for the granulation equipment entails that the investment is no longer relevant. The topic on how to treat and spread the fly ash to encourage the forest owners to decide for extraction of branches and tops, forest residues, from clear cutting areas will go on in the region, even though this business idea seems to fail.