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Biomass potential from young-dense stands in Sweden and road hauling to industries

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Bioenergy accounted for 32% of the total energy supply in Sweden in 2012, leading in this respect among the industrialized countries. The main reason is the utilization of by-products from saw- and pulp-mills, but also logging residues are recovered. Nevertheless, the use of by-products is close to fully utilization, and logging residues are soon fully utilized. It's therefore needed to extract more biomass directly from the forest. A resource remains in the small trees from early thinnings. To design appropriate supply systems and to calculate their cost, the biomass concentration and distances to industries are crucial information. The aim was to describe the distribution and characteristics of the young, un-thinned, stands in Sweden and specify their locations in relation to pulp mills and power plants. A national forest inventory dataset was represented in a GIS. The target stands were selected with tree height between 3-12 m, DBH30 OD t/ha. Results showed that these stands account for 2,11 million ha (9% of Sweden forest area) and a total standing volume of 119 million OD t. At least 1/3 of this volume could be harvested from a forest development perspective. The average distance to power plants (ranging from 115 to 40 km) was shorter than to pulp mills (ranging from 153 to 64 km), decreasing as moving southwards in Sweden. The amount of resource reveals the need for implementing new management systems, such as boom-corridor thinning, and the development/use of more efficient cutting technology, e.g. accumulating felling heads.