

# QUICK MOISTURE MEASUREMENT OF WOOD FUEL WITH RADAR TECHNOLOGY

There are 580 district heating networks and 125 larger biomass power plants in Sweden. Biofuel consists mainly of four types of wood fuel: recycled wood, forest residues (branches and tops), bark and wood chips. Moisture content can be measured directly, quickly and reliably, and thereby determined with a radar system in seconds. Measurement can be carried out for the entire load in order to get a representative average value. Faster and more reliable moisture measurement leads to more efficient logistics and fuel management, which have been calculated to saving 2-4 million SEK per year at larger plant.



## Non-destructive and non-contact

For safe, non-destructive and non-contact measurement with high accuracy in the moisture content, UWB radar (ultra-wideband) has been used. The project has shown that the moisture content of wood fuel can be determined with an accuracy of three percentage



points. The project has shown that it is possible to measure long distances that mimic measurement of wood chip trucks. In the test, the moisture content was determined with a deviation of 1.6 percentage points.

## New timber measuring act

Accuracy may be increased further by making additional modelling and measurement of more parameters. According to the new timber measuring act (SKSFS 2014: 11), an accuracy equivalent to two percentage points is required for determination of the moisture content of wood fuel. This should be possible, if the radar technology is further developed. Consequently, a future radio and radar-based measurement system can also be used as part of a billing system to ensure correct payment. Involved project partners are planning a new project where accuracy shall be improved, and the technology shall be tested in real environments.

## Radarbolaget

Radarbolaget is an innovative company using complex measurement systems with radar sensors for the steel and metal industry, energy and paper, and process industries. We have proprietary technology and comprehensive solutions for monitoring of hot and difficult processes. We also hold a worldwide patent for the measurement in heat treatment furnaces with radar sensors. Customized projects are constantly evolving new solutions in measuring and sensor technology.



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