

# Master Thesis Work:

## Markets for and production of lignin in asphalt applications

### Background & objective

The work by Wageningen University & Wageningen Research show interesting results for lignin-based asphalt. This master thesis work will focus the potential for this type of lignin-based asphalt for the Nordic or European market.

The objective is to clarify where the market is and who are the actors are today on these different markets in the Nordic countries or EU, the potential to establish a production site in Värmland using a defined technology where lignin is modified to a product for asphalt and to identify if there are other actors in the field of “green” solutions in addition to just the easy switch from a fossil to a bio fuel. The demand on production of the lignin-based asphalt as well as the business case should be clarified and the information summarized into a road map for commercialization.

### Challenges

- A map of today's actors in production and users as well as specific products
- Specifications
- Alternative “green” products
- Cost structure
- Drivers for change into “green” options and well as limitations
- Production demands – what is needed in terms of equipment and infrastructure etc.
- R&D challenges

### Project Plan

The objective with this master student work is to clarify if it is possible to find a concept with good potential to form a business case in Värmland for the Nordic (or European) market. The work will focus use of available information which the master student/-s develop and refine. Limited experimental work can be justified in some cases.

### Candidate

As a candidate for this Master Thesis work you should preferably like independent and creative work where you collect a lot of information by different contacts with the established actors in the field. A suitable background is industrial economy or chemical technology. The candidate will need to have interest and skills in both technology, economy and business development. The work is planned for Q1 and Q2 2019.

### Location

The LignoCity Initiative in Bäckhammar – cooperation with Karlstad University, Paper Province and RISE Bioeconomy.

### Contact persons

The LignoCity Initiative:

- Karlstad University: [magnus.stahl@kau.se](mailto:magnus.stahl@kau.se)
- RISE Bioeconomy in Stockholm: Per Tomani RISE ([per.tomani@ri.se](mailto:per.tomani@ri.se))

Operative supervisors will be discussed and decided together with the master student.