

# INVESTIGATION OF PRODUCTION COSTS OF ADVANCED BIOFUELS USING LEARNING CURVE METHODOLOGY

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## **Kandidatarbete vid avdelningen för energiteknik. Institutionen för rymd-, geo- och miljövetenskap**

För 3-6 studenter med bakgrund från M, K, KF eller F.

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The project will look into liquid advanced biofuels – defined as liquid fuels produced from lignocellulosic feedstocks from agriculture, forestry and waste – and liquid renewable alternative fuels produced from renewable hydrogen and CO<sub>2</sub> streams. The commercialisation of these renewable transport fuels requires an estimation of the production costs as a function of installed capacities and technical learning over time.

In this context, the project will look into the production costs of innovative biomass conversion technologies, such as thermochemical and biochemical pathways to diverse advanced biofuels. A database is available with parameters of the learning curve method for thermochemical and biochemical conversion technologies targeting at methanol, ethanol, butanol, dimethylether, Fischer-Tropsch products (gasoline, diesel, kerosene) and methane as potential biofuels for road, aviation and maritime transport. This database will be:

- (i) enriched with the corresponding parameters for renewable alternative fuels produced from renewable hydrogen and CO<sub>2</sub> streams and
- (ii) screened with systematic sensitivity analysis methods considering the uncertainties of these parameters. Investigated scenarios should include current and future policies and market evolution of these fuels.

The project should highlight what can be expected for production cost reduction of liquid renewable fuels in the time horizon 2020-2050 and which technological learning parameters and assumptions have the highest impact on these estimations.