

**PROJECT TITLE: Development of a heat integrated steam explosion pre-treatment process to unlock the biogas potential of manure**

**PROJECT ACRONYM: ManuMax**

**ABSTRACT**

Biogas produced in anaerobic digestion plants of manure has the potential to play an important role in future smart and flexible energy system by enabling demand driven electricity production. Manure is one of the largest currently untapped energy resources in Europe due to its high recalcitrance towards anaerobic deconstruction that does not allow the economic feasible conversion to biogas. Steam explosion pretreatment of manure is a promising method to increase the methane yields and the method is applied on commercial scale for conversion of waste water sludge. In this project we aim to adapt this pretreatment method to allow economically feasible farm scale anaerobic digestion of manure. The proposed technology allows for recovery of high grade heat and the option of two stage pretreatment to avoid degradation of hemicellulose. Life cycle, sustainability and techno-economic analysis are included to predict the potential of the process and the consequences of its wider deployment.

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