

Track 1 - The bioresource transition in regions

Title of the proposed paper

Green gas: regional sources and applications

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Text abstract (max. 300 words)

Due to the intermittent availability of wind and solar energy, biofuels provide ample opportunities to bridge the gap between energy supply and demand and reduce CO₂-emission. Despite the extensive natural gas infrastructure, the wide-availability of bioresources like manure, sewage sludge and organic municipal solid waste in Overijssel and national SDE-subsides, economic feasibility is limiting the increase of biogas and green gas production. Increasing feedstock prices and a low price of natural gas are important causes. Subsidy policy however aims to upgrade biogas to gas grid requirements independent of the differences between bioresources and neglects the fact that after upgrading green gas is still mainly used for low quality heat applications.

At this moment, organic solid waste collectors, in contrast to water boards and farmers, are injecting significant amounts of green gas into the national gas grid. Their centralized organic waste approach allows them to profit from economies of scale, but also makes them dependent on individual households for the composition and quantity of the organic waste. This negatively influences their business case in terms of green gas upgrading and discharge costs. Farmers however, are self-dependent, but manure treatment is not core-business, a farm is generally too small for economies of scale, and excess manure digestate has negative value. The core-business of water boards is to collect and treat waste water, and producing biogas from "diluted" waste streams is currently still aimed at energy-efficient water treatment and waste sludge reduction. So, as long as discharge costs and SDE-subsidy are working in opposite direction, any business case will be challenging.

Potentially, CO₂ produced in digesters offers the solution in combination with upcoming power-to-gas technology, that can turn excess regional electricity and concentrated CO₂-sources into CH₄ via organisms already inside the digester. A subsidy valorizing controlled CO₂-emission would be a great support.