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“CLEANER PRODUCTION TOWARDS A SUSTAINABLE TRANSITION”

## Mapping the Stockholm Vehicle Gas Supply Chain using Network Theory to Assess Local Upgraded Biogas Supply and Demand Relations

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### Abstract

The paper uses Stockholm County as a case study to guide our analysis. The region not only concentrates the largest number of inhabitants in Sweden but also holds alone around 35% of the Swedish fleet of passenger cars using gas as fuel. The region's potential vehicle gas demands are 460 GWh by 2020 and 1202 GWh by 2030. The methodological approach relies on Network Theory to guide the numerical analysis of the vehicle gas supply chain in the region. Our results indicate that local vehicle gas supply chain is a rigid structure that might be averse to new entrants such as new distribution companies but, at the same time, it offers opportunities for biogas producers. Distribution companies, especially those placed in the 1st-tier segment are averse to new entrants because they present high homophily and strong ties. Hence, they are more prone to maintain the network's *status quo* since the Swedish vehicle gas market is not yet well developed, which results in a lack of multiple players, which leads to cluster formation.

**Keywords:** *Biofuels; upgraded biogas; vehicle gas supply chain; network analysis, Stockholm County.*

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