Is natural gas a backup fuel against shortages of biogas or a threat to the Swedish vision of pursuing a vehicle fleet independent of fossil fuels?

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The objective of this study is to verify whether natural gas is only a backup fuel against shortages of upgraded biogas or a threat to the Swedish vision of pursuing a vehicle fleet independent of fossil fuels. 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 show that natural gas will keep on being an important resource and playing a vital role within the local vehicle gas supply chain but no longer as a backup fuel against upgraded biogas shortages. In fact, natural gas has become a price regulator responsible for vehicle gas attractiveness, especially for passenger cars in the region. As a result, phasing out natural gas could hamper future developments of biogas supply chain in the country, hindering the achievement of a green fleet.