

Drivers of Alternative Fuels Acceptance: The Example of Liquefied Natural Gas

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The transport sector is one of the highest energy consumers and main source of CO₂ emissions. To reduce dependencies on oil and achieve climate policy goals as for example foreseen in the European alternative fuels strategy it will be necessary to deploy substantial shares of alternative fuels. LNG technology is very promising in this context. Due to its high energy density it is especially suitable for waterborne activities and long-haul transport vehicles e.g. trucks or busses. LNG fuelled engines cause hardly any particulate and sulphur dioxide emissions. Using bio methane makes it even possible to completely avoid CO₂ emissions. There is growing interest in LNG as it is appropriate for heavy duty vehicles where there are few alternatives for diesel.

For implementing LNG and other alternative fuels in general it is necessary to establish required infrastructure and sufficiently provide the commodity. The main prerequisite to ensure feasibility of constructing the required infrastructure is to gain information about the potential demand which could be generated and served. This potential demand is determined by specific influencing factors, some of them being drivers and some of them being barriers for the introduction of alternative fuels. The aim of this paper is to analyse these influencing factors by adapting the widely recognised Technology Acceptance Model from Davis.

The technology acceptance model (TAM) has been developed to assess why persons apply a technology or refuse to apply it. It has already been employed on various types of technologies, partly also on alternative energy systems and power sources. However, to the best of our knowledge, the model has never been utilized for the purpose of analyzing users' acceptance of LNG as an alternative fuel. In a first step, comprehensive literature research has been carried out to collect evidence for the variables which will be integrated into our LNG acceptance model. The paper will present the research framework for developing this model. Further research will consist in testing the LNG acceptance model within potential users and within the LNG community.

Keywords: LNG, Liquefied Natural Gas, alternative fuel, emission reduction