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Innovative solution dedicated to performance and safety tests procedures of compressed natural gas (CNG) home fast refueling stations

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Mobility is a must of everyday life, which led us to the oil dependence. Global economic changes caused that natural gas is recognized worldwide as the main and leading alternative to oil products in the transportation sector. There is a huge barrier to convince vehicle users to switch to natural gas, the lack of refueling infrastructure for natural gas vehicles (NGV) is frequently the case. The key to solve this problem is to provide a refueling infrastructure solution for natural gas vehicles, fast refueling units ready to work in household condition. Home fast refueling units operate with natural gas (methane), which is being provided through gas pipeline grid and become the largest vehicle refueling infrastructure. Home fast refueling units and NGV owners will enjoy day-today time savings and convenience: Home car refueling in minutes, month-to-month fuel cost economy, year-to-year incentives and tax deductibles on natural gas refueling system as per country, reduce CO_2 local emissions, saving costs and money. The procedures of the final production prototype, independent of operational performance and accounting for the safety issues have been tested and described in the paper. The aim of the safety tests is to test externally and independently analyze HRS production prototypes for safety aspects. The test simulated various scenarios and operational performance tests were dedicated to external independent production prototype responds to various simulations. The operational performance tests were dedicated to external independent testing of HRS production prototypes for operational performance. The main tested parameters were productivity m³/h, energy consumption kW/h, the speed (rate) of refueling is hour or min.

Biography

Mariusz Laciak is a Professor and Head of Natural Gas department at Drilling, Oil and Gas Faculty at AGH UST. His main research activities are related to natural gas transmission, natural gas production, natural gas energy and utilization.

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