

# INVESTIGATE THE PERFORMANCE OF DIESEL ENGINE AT DIFFERENT HCNG BLENDING RATIO

**M Tech Dissertation**

by

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## ABSTRACT

Advances in renewable energy sources and impact of green house gases on climate change have led intense research in the area of renewable energy for transport and power generation sectors. All over the world gaseous fuels have gained momentum as an ideal alternative fuel for meeting future energy needs. Hydrogen enriched compressed natural gas (HCNG) may be considered as an alternative automotive fuel which does not require any major modification in the existing CNG engine and infrastructure. Many researches confirm the advantages of using hydrogen and natural gas blended together for the internal combustion engine in both areas of improving performances and reducing emission levels. In a short to medium range terms, the air pollution throughout the globe could be significantly reduced by using HCNG in the internal combustion engine and in many other applications with the substitution of using HCNG as a main source of fuel or as a secondary source of fuel such as the dual fuel operation system in the diesel vehicle. In this study experiments will conduct with minimum pilot diesel injection and maximum additional HCNG into the engine. Low pressure gas injection method will use in which gas is introduced using port injection, so it mixes with combustion air just before it enters the cylinder. The experiment will be carried out on the single cylinder four stroke VCR diesel engine. The eddy current water cooled dynamometer will use to analyze the performance of engine. Use of CNG and Hydrogen in CI engine is having strong potential to affect the automotive markets of India, as it reduced the pollution level as well the quantity of fuel to require for combustion. A better option for India It is advantageous to use the existing CNG infrastructure for investigating the feasibility of using HCNG as an automotive and gain experience in handling the new fuel. Furthermore, no major engine modifications are required.

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