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### Analysis of acetylene as an energy source for IC engines

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Abstract - With ever growing concerns on environmental pollution, energy security, and future oil supplies, the global community is seeking non-petroleum based alternative fuels, along with more advanced energy technologies to increase the efficiency of energy use. The most promising alternative fuel will be the fuel that has the greatest impact on society. The major impact areas include well-to-wheel greenhouse gas emissions; non-petroleum feed stocks, well-to-wheel efficiencies, fuel versatility, infrastructure, availability, economics, and safety. Compared to some of the other leading alternative fuel candidates (i.e., hydrogen, natural gas, ethanol, biogas and biodiesel), acetylene appears to have the largest potential as the fuel of choice for eliminating the dependency on petroleum. The literature relevant to acetylene use is reviewed and summarized to demonstrate the viability of acetylene as an alternative fuel. Acetylene has very wide flammability limits, which is one of the important properties of a fuel. These parameters are a measure of the range of fuel /air ratios over which an engine can operate. High self-ignition temperature of acetylene allows larger compression ratios than diesel engines. Due to lower quenching distance similar to hydrogen, flame cannot be quenched easily in the combustion chamber. Due to lower ignition energy helps the engine to run on lean mixture and ensures prompt ignition. High flame speed operates the engine to approach the thermodynamically ideal engine cycle. High flame speed, wide flammability limits and short quenching distance lead to premature ignition and undesirable combustion phenomenon called knock, the primary problems that have to be encountered in operation of acetylene engines. This problem can be solved by Reduce the inlet valve opening time, and it will led to less percentage of fuel comes to combustion chamber for SI engine. In CI engine reduce the injection time period. This process can be control the knocking.