

CNG in DPCs

Compressed Natural Gas (CNG) is an excellent alternative to the present fossil fuels such as diesel and petrol. Railways have successfully converted few Driving Power Cars (DPC) into dual fuel mode with CNG. The tail pipe emissions are greatly reduced and thereby ensuring a cleaner environment. A Dual Fuel diesel engine is a diesel engine that has been fitted with additional devices such as gas train, valves, evaporator system, control module etc allowing it to utilize natural gas as a supplemental fuel. This engine requires some amount of diesel for operation, for ignition of the gas fuel. The dual fuel engine type has a number of quality attributes such as that of fuel flexibility, operating with cleaner natural gas when available and on diesel alone when necessary.

With the growing concern for better environment and less obnoxious gases in atmosphere natural gas has emerged as a viable solution for replacement of diesel. Cost effectiveness will be another advantage.

IROAF has the mandate to convert 100 DPCs into dual fuel with natural gas. Out of this 11 no DPCs have been converted and is in operation for past one and half years. The homing shed is Shakurbasti ,Northern Railway. The technology used in dual fuel DPCs are fumigation and in-port technology. Six more DPCs are presently under conversion at ICF. Further, more conversions are planned and tenders have been floated. Introduction of natural gas DPCs in other sheds will be done once fuelling gas stations are in place.

Further IROAF is looking ahead to better technologies for use of LNG and better diesel substitution. Presently CNG has limitation of less energy density and thus poses a space limitation for onboard fuel. LNG has comparable energy density with diesel and is ideally suited for on board storage of fuel. In future conversions, LNG will be a better fuel option. CNG Cascade Space limitations are the major bottlenecks. With CNG the volume required for storage of fuel is about four/ five times that of the Diesel Tank. This can be reduced later on with induction of LNG technology.

Modular storage of LNG can be used for DPCs. Locomotives can have LNG storage and a driving cab mounted on another loco under frame and coupled with other locomotive. This has been done successfully in Canada and USA.