Hydrogen-Enriched Compressed Natural Gas (HCNG)

- Delhi will be the first city in the country to roll out hydrogen-enriched compressed natural gas (HCNG) buses for public transport from November 2020.
- It will start as a pilot project with 50 CNG buses retrofitted with HCNG.
- Since Air pollution is fast becoming a serious global problem with increasing population and its subsequent demands. This has resulted in increased usage of hydrogen as a fuel for internal combustion engines.
- Also, the Delhi government along with Indian Oil Corporation Limited (IOCL) and Indraprastha Gas Limited (IGL) began work to set up India's first semi-commercial HCNG station.

What is HCNG

- The blending of hydrogen with CNG provides a blended gas termed as HCNG.
- HCNG stands for hydrogen-enriched compressed natural gas and it combines the advantages of both hydrogen and methane.
- HCNG allows customers early hydrogen deployment with nearly commercial technology. It is being treated as the first step towards future hydrogen economy.
- Hydrogen has been regarded as a future secondary fuel for power system due to carbon-free operation.
- The rapid increase in the emission of greenhouse gases and very strict environmental legislation are major motivating factors for the usage of hydrogen in fuel cells and internal combustion engines.
- Hydrogen is an excellent additive to improve the combustion of hydrocarbon fuel due to its low ignition energy, high reactivity, diffusivity and burning velocity.
- Since hydrogen infrastructure and refuelling stations are not meeting the demand, the widespread introduction of hydrogen vehicles is not possible in the near future. One of the solutions for this hurdle is to blend hydrogen with methane
- However, Hydrogen-Enriched Compressed Natural Gas (HCNG) is still under research as though it increases fuel efficiency and reduce carbon emission but it has also led to increased NOx emissions.