NTPC Ltd, India’s largest power producer and a central PSU under Ministry of Power, has invited Global Expression of Interest (EoI) to provide 10 Hydrogen Fuel Cell (FC) based electric buses and an equal number of Hydrogen Fuel Cell based electric cars in Leh and Delhi. The EoI has been issued by NTPC’s wholly owned subsidiary, NTPC Vidyut Vyapar Nigam (NVVN) Limited.

The move to procure Hydrogen Fuel Cell based vehicles is first of its kind project in the country, wherein a complete solution from green energy to the fuel cell vehicle would be developed.

**Fuel cell Technology**

A fuel cell uses the chemical energy of hydrogen or another fuel to cleanly and efficiently produce electricity. If hydrogen is the fuel, electricity, water, and heat are the only products. Fuel cells are unique in terms of the variety of their potential applications; they can provide power for systems as large as a utility power station and as small as a laptop computer.

**Benefits of fuel cell:**

- Fuel cells can be used in a wide range of applications, including transportation, material handling, stationary, portable, and emergency backup power applications.
- Fuel cells can operate at higher efficiencies than combustion engines, and can convert the chemical energy in the fuel to electrical energy with efficiencies of up to 60%.
- Fuel cells have lower emissions than combustion engines.
- Hydrogen fuel cells emit only water, so there are no carbon dioxide emissions and no air pollutants that create smog and cause health problems at the point of operation.
- Also, fuel cells are quiet during operation as they have fewer moving parts.

**How Fuel Cells Work**

- Fuel cells work like batteries, but they do not run down or need recharging.
- They produce electricity and heat as long as fuel is supplied. A fuel cell consists of two electrodes—a negative electrode (or anode) and a positive electrode (or cathode)—sandwiched around an electrolyte.
- A fuel, such as hydrogen, is fed to the anode, and air is fed to the cathode. In a hydrogen fuel cell, a catalyst at the anode separates hydrogen molecules into protons and electrons, which take different paths to the cathode.
- The electrons go through an external circuit, creating a flow of electricity. The protons migrate through the electrolyte to the cathode, where they unite with oxygen and the electrons to produce water and heat.