

**LOK SABHA**  
**UNSTARRED QUESTION No. 2759**  
TO BE ANSWERED ON 16<sup>th</sup> March, 2023

**USE OF HYDROGEN AS FUEL**

†2759. SHRI DULAL CHANDRA GOSWAMI:

पेट्रोलियम और प्राकृतिक गैस मंत्री

Will the Minister of PETROLEUM AND NATURAL GAS be pleased to state:

- (a) whether the Government proposes to develop hydrogen as an environment friendly fuel instead of petroleum, diesel and Compressed Natural Gas (CNG) and if so, the details thereof;
- (b) whether any research has been started by the Government to come up with a new way of producing hydrogen in the country and if so, the details thereof; and
- (c) the time by which the use of hydrogen as an environment-friendly fuel is likely to be started across the country?

**ANSWER**

पेट्रोलियम और प्राकृतिक गैस मंत्रालय में राज्य मंत्री  
(तेली रामेश्वर श्री)

**MINISTER OF STATE IN THE MINISTRY OF PETROLEUM & NATURAL GAS  
(SHRI RAMESWAR TELI)**

- (a): The Government has recently approved the National Green Hydrogen Mission which aims to decarbonise industrial and mobility sector through use of Green Hydrogen as a fuel and industrial feedstock.
- (b): Various Research & Development (R&D) activities on hydrogen are being undertaken by Oil & Gas Public Sector Undertakings (OGPSUs). OGPSUs have also formed a Hydrogen Corpus Fund to support R&D on various facets of hydrogen including its production. Research Activities undertaken by OGPSUs are attached as **Annexure**.
- (c): Government has notified the use of hydrogen as automotive fuel for fuel cell vehicles on 16<sup>th</sup> September, 2016. The specifications of Hydrogen as a reference fuel for Internal Combustion Engine BS IV vehicles have also been notified on 16<sup>th</sup> December, 2022.

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**ANNEXURE REFERRED TO IN REPLY TO PART (b) OF LOK SABHA UNSTARRED QUESTION No. 2759 FOR 16.03.2023 REGARDING USE OF HYDROGEN AS FUEL.**

Research Activities undertaken by OGPSUs in the field of Hydrogen:

Oil & Gas PSUs	Research Activities
GAIL (India) Ltd	<p>Gail R&amp;D is pursuing the following research works in collaboration with IIT-BHU, IISER, Kolkata and IIT, Madras:</p> <ul style="list-style-type: none"> <li>• Development of Natural Gas based Membrane Reformer for Fuel Cell Grade Hydrogen Production</li> <li>• Development of Self-supported Electrode for large scale Electrochemical Hydrogen Generation</li> <li>• Design and development of a fully automated prototype of the Biomass Gasification system for production of hydrogen</li> </ul>
Oil and Natural Gas Limited (ONGC)	ONGC is working on hydrogen production through thermo-chemical cycles.
Oil India Limited (OIL)	OIL has commissioned a Green Hydrogen producing pilot plant of capacity 10 Kg per shift which can be scaled up to 30 Kg per day at Jorhat, Assam
Hindustan Petroleum Corporation Ltd (HPCL)	<p>HPCL Green R&amp;D Centre has taken up various initiatives in the area of producing hydrogen:</p> <ul style="list-style-type: none"> <li>• Developing CO<sub>2</sub>-free and water-free process for production of HCNG. Currently, a pilot has been set up, which also produces Carbon Nano Tubes (CNT) as a valuable by-product.</li> <li>• Fabricating a green hydrogen plant based on indigenously developed technology (Alkaline Electrolyser)</li> <li>• Developed Blue Hydrogen technology in which CO<sub>2</sub> will be captured from various streams using rotating packed bed system (HP-HIGAS Technology).</li> </ul>
Indian Oil Corporation Ltd (IOCL)	<p>IOCL patented HCNG (Hydrogen Spiked CNG) technology has been successfully demonstrated at Rajghat Bus depot on 50 CNG buses as part of joint study with IGL.</p> <p>IOCL (R&amp;D) in collaboration with Tata Motors Ltd has carried out limited trials of country's first hydrogen fuel cell bus prototype.</p>