

Country's first hydrogen fuel plant nears completion

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Bangladesh's first hydrogen fuel production plant, a project initiated by the Bangladesh Council of Scientific and Industrial Research (BCSIR), is all set to begin operations by June next year.

The plant will produce hydrogen by converting household waste and water into highly combustible fuel through a process known as biomass gasification and electrolysis of water, respectively, according to BCSIR officials.

The BCSIR has already set up a unit of the plant, and the works to set up another are going on in full swing.

Once both units begin operations, they will collectively produce about 5.8 kilogrammes of hydrogen fuel daily. The volume could go up to 29 kgs if the plants run round the clock.

In a bid to locally produce highly sustainable and environment-friendly hydrogen fuel, the BCSIR took up a pilot project involving Tk 54 crore for the "Establishment of Hydrogen Energy Laboratory" at its Chattogram centre in October 2018.

The main aims of the project are to conduct research, ensure quality control related to hydrogen production, provide storage and supply solutions, develop infrastructure, and provide services in the form of a national level reference centre.

In Bangladesh, the demand for hydrogen is growing in the transportation, energy and power generation, oil refining, steel, methanol, electronics and food industries.

Tawfiq-e-Elahi Chowdhury, adviser to the prime minister for energy, power and mineral resources, yesterday visited the hydrogen plant.

After his visit, Chowdhury told reporters that the government had taken several initiatives to increase the domestic use of hydrogen fuel.

"Since this is the first plant in Bangladesh, the government is emphasising research in this sector," he said.

Hydrogen is becoming more popular all over the world as an environment-friendly alternative to fossil fuels.

"So, the main aim of the project is to make the fuel more affordable and popular," Chowdhury added.

Since the raw materials required, such as biomass and water, are readily available in Bangladesh, hydrogen fuel could play a big role in the future as renewable energy.

"The project also aims to promote private investment in hydrogen fuel plants," he said.

Md Abdus Salam, project director of the BCSIR, told The Daily Star that one kg of hydrogen could be generated from nine litres of water. About 33.33 kWh (Kilowatt- hour) of energy comes from one kg of hydrogen fuel, while petrol and concentrated natural gas provided 12 kWh and 14.7 kWh, respectively.

A car can run 100.131 kilometres using one kg of hydrogen fuel, whereas a traditional vehicle runs 16 km using one litre of petrol.

Besides, production, delivery and distribution costs were taken into consideration to determine the price of hydrogen fuel for usability, with the current unit price ranging from \$1.60-10.

Hydrogen fuel systems do not require extensive infrastructure development and investment along with traditional fuel systems. Besides, hydrogen production is very promising in Bangladesh due to the abundance of water and biomass.

"In addition, hydrogen fuel will boost energy security, energy reserves and the national economy," Salam said.

Energy from fossil fuels and renewable sources can be stored in the form of hydrogen, which can be used later by converting it into fuel or different forms of energy if required.

"This would add a large-scale renewable energy source to the national grid," he said, adding that training workshops are already underway to ensure skilled human resources for the industry.