Hydrogen Production Method

Hydrogen is a clean fuel and an efficient energy carrier. Various research and development projects have been carried out (including pilot demonstration project) across the globe, for demonstrating hydrogen fuel cells application for transportation. In India also, the Ministry of New and Renewable Energy has been supporting research and demonstration activities to develop Hydrogen and Fuel Cell Technologies and their applications for more than a decade. As a result of these efforts, hydrogen operated motorcycles; three-wheelers and small generators have been developed in the country. This lever analyzes hydrogen production plans in the state and lets user select mode of production of hydrogen for transportation sector, keeping in view the National Hydrogen Energy Roadmap developed by the Ministry of New and Renewable Energy (MNRE).

Level 1

Level 1 assumes that 95% of hydrogen fuel demand will be met by coal reforming and remaining 5% by gas reforming in 2050. This could be primarily due to the availability of the basic resources in the country and the commercial feasibility of these technologies.

Level 2

Level 2 assumes usage of electrolysis, although to a very small extent for production of hydrogen fuel. In 2050, 10% of the demand will be taken up by the electrolysis technology, 30% by coal gasification and 60% by natural gas reforming.

Level 3

Level 3 assumes a higher share of electrolysis and electro-chemical technology in meeting the hydrogen fuel demand. By 2050, 50% of the demand is met by electrolysis technology, 40% by coal gasification and 5% each by natural gas reforming and biomass gasification.

Level 4

Level 4 is a more aggressive scenario which assumes a higher share of electrolysis. In 2050, 80% of the hydrogen fuel demand is met by electrolysis, 5% by coal gasification, 5% by natural gas reforming and 10% by biogas reforming.