

Assessment of hydrogen fuel supply option in India

[Sponsor: Bharat Heavy Electricals Limited]

Executive summary

The study was carried out by TERI, Delhi, for BHEL (Bharat Heavy Electricals Limited), Hyderabad, for preparation of a project document on fuel cell bus development in India under the UNDP-GEF (United Nations Development Programme-Global Environment Facility) programme. The study assessed the availability and costs of hydrogen production from sources as mentioned in the scope of the project. As part of the study, suitable fuel supply options for cities of Delhi and Hyderabad and requirements of refuelling station were suggested. The findings of the reports were based on the data and information available at the time of writing the report and are mentioned below.

- The availability and costs of production of hydrogen and hydrogen carriers from various sources were assessed.
- Fuel demand for a fleet demonstration of 10 buses (as per Ballard's Phase-II PEMFC bus specifications) has been assessed at 1692 Nm³/day (Newton cubic metre per day).
- The refuelling station capacity is estimated at 2000 Nm³/day. Refuelling of five buses will be done per day and the fuel will last for two-day trips comprising a total of 396 km.
- The suggested fuel supply option will be directly from hydrogen from a chlor-alkali plant with a delivered hydrogen cost range of 10.88–27.38 rupees per Nm³.
- The refuelling station can be sited at depots of local transport corporation of the city where the demonstration project will be carried out. Fuel cell buses will be stationed at this depot after completing the day's trips.