

City Talk



HYDROGEN ERA STARTING TO FILL UP FAST

Last week, I described the use of hydrogen fuel in container tractors and other applications.

But that success will not be possible without a good network of filling stations.

During my visit, I had the opportunity to see how refilling was done by piggybacking on conventional filling stations.

I was pleasantly surprised to see stations catering for both fossil fuel and hydrogen vehicles as I'd expected them to be completely separate.

Obviously, hydrogen fuel needs special arrangements for safe storage and dispensation so its filling bays are usually located at the ends or sides of stations.

A distinctive color scheme and signs make them stand out from the other bays.

Natural ventilation and extraction fans ensure that in the remote event of leaks, it can be dispersed quickly.

Fireproof electrical fittings are used to ensure there are no sparks.

Static electricity discharge poles are installed local to the bay so that specially trained station personnel, wearing protective clothing, made with materials that do not attract static electricity, can, before all else, put their hands on one of the poles.

Fuel cell vehicles are also earthed by a flexible cable connection at the bay.

Having ensured there are no objects with static electricity in the vicinity, the filling hose is then carefully connected to the vehicle's filling point.

A detection probe is then brought near the filling point to ensure there is no leakage before the filling process starts.

The entire refilling process may take up to 10 minutes, depending, of course, on the amount of gas needed, but a large part of that time is spent on ensuring there is no leakage and no sparks.

Hydrogen is light, and normally for a bus, a few kilograms will enable it to run for a full day.

But container tractors, such as those I saw



at the factory, have 10 cylinders that each take four kilograms to facilitate cross-country runs.

The stations I saw during my visit were operated by different fuel suppliers, and the source of the hydrogen differs.

As they are still in an experimental stage, one station produces hydrogen from rooftop solar panels and another simply obtains it from tube trailers brought in from other production sources.

I was told that Foshan, a relatively small city, already has some 40 stations to serve buses and goods vehicles.

I am looking forward to the day when hydrogen fuel can be available in Hong Kong for use in road vehicles.

I understand there is already a plan to convert a station in Au Tau, Yuen Long.

With Towngas' network, splitting hydrogen off from a gas supply that already has the gas in about half of its content for use in vehicles and buses will not be difficult.

The lighter weight of hydrogen fuel cell vehicles and their zero carbon emissions make them competitive to diesel and battery electric variants.

It will be one way we can meet the 2030 carbon neutral target in Hong Kong.

And if one is still concerned about an adequate gas supply, I can assure you that with hundreds of billions of yuan invested in huge solar power plants in Xinjiang, which produce power far in excess of demand, there is an abundance of electricity for conversion into hydrogen.

All we need now is an efficient gas pipeline to consumers, hopefully including Hong Kong. The future is right at our doorstep.

Veteran engineer Edmund Leung Kwong-ho casts an expert eye over features of modern life

