City Talk

Nuts and bolts

Edmund Leung

Hydrogen economy has arrived

Clockwise from above: a large group of delegates at a hydrogen conference, a hydrogen-filling kiosk, a hydrogen fuel cell power generator and a hydrogen-powered street cleaning vehicle.

I can make this bold statement as I saw the rapid development in technology in the last month. I also had the opportunity to attend three conferences on the subject of hydrogen energy, the first one by Citybus and another one by the Energy Institute Hong Kong Branch.

But the most significant one was organized by the Electrical and Mechanical Services Department in collaboration with China Hydrogen Alliance, which involved many visiting experts on technology, regulation and users.

The list included the mainland, the United Kingdom, Australia, Canada and many others. The total number of speakers exceeded 50, which is a very large number for such a conference.

The conference received a wide spectrum of over 800 delegates in Hong Kong, including academia, public utilities, transport operators and regulatory authorities, among many other sectors, all gathering to learn of the latest technology and widespread application of hydrogen as an energy source, helping to fulfill the carbon-neutral objective set by our Environmental Bureau.

It is noteworthy that the conference attracted the finance sector's interests, which should make it even more likely to work successfully as we know such development must depend on financial investments.

The key takeaway of the conference is that, with a huge volume of renewable energy source from Northwest China, there will be an abundant supply of green energy to make hydrogen. Extensive development has enabled hydrogen to be used as fuel for power generation, transport and construction activities. The only weak link at this time is an efficient method of transporting hydrogen over long distances.

It is an extremely pleasant finding that we have now surpassed Europe, America and North Asia as the most successful region for developing a hydrogen economy. Although other regions started testing hydrogen energy applications long before us, their progress was hampered by inadequate supply of hydrogen and lack of investments to make it suitable for everyday application.

Immediate application of hydrogen power includes power generation and transport.

For power generation, gas turbines are already equipped to burn a fuel mixture of over 50 percent hydrogen when mixed with natural gas without damage to the blades. For transport, fuel cell technology has developed enough to allow commercial use of hydrogen to make electrical power, to be fed to drive motors and batteries for long-range travel.

For construction sites, again, hydrogen fuel cells can provide power on remote sites without electrical supply, making construction activities much more versatile.

As to transporting hydrogen over long distances, the hurdles are gradually being crossed.

The present solution is to compress the hydrogen gas to high pressure – up to 350 bars – and storing them in steel tubes for transport by tube trailers. Hydrogen, being light, can be compressed without significantly increasing weight. Newer technology enables hydrogen to be compressed up to 700 bars, further reducing transportation costs.

Hydrogen can also be liquefied or stored as ammonia, again making it easier for transportation.

With efficient transportation methods, the application of hydrogen as an energy carrier will become much more effective.

As for the production of hydrogen, the existing method of using electrolysis can be supplemented with newer technology such as photocatalytic or electro-photocatalytic processes. Although at this time it remains a laboratory process, scientists and engineers are confident that the process can be applied in commercial scale very soon.

With all of these developments, we can see hydrogen energy application in Hong Kong arriving at our doorsteps. Our government authorities have already published the code of practice of hydrogen for safe operation and made it available to operators intending to use hydrogen as a fuel carrier. Properly used, hydrogen is at least as safe as LPG, which is already widely used as transport and domestic fuel in Hong Kong.

Let us all embrace this new energy source, as it will be our longer-term solution to zero carbon fuel. It will make our living much cleaner, more efficient and equally safe to other existing fuel.

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

HK Sevens bring trademark thrills to a brand-new, world-class venue

CULTURAL EXCHANGE

Bernard Charnwut Chan

The Sevens have begun an exciting new chapter at the state-of-the-art Kai Tak Stadium. SINGTAO, REUTERS

The 2025 edition of the Cathay/HSBC Hong Kong Sevens delivered an unforgettable weekend of world-class rugby and lively festivities, delighting passionate fans, many of whom traveled to Hong Kong for the event.

The tournament maintained its legendary reputation while beginning an exciting new chapter in its history at the state-of-the-art Kai Tak Sports Park.

This world-class venue seamlessly integrates cutting-edge facilities with the cherished traditions of the Hong Kong Sevens, preserving its iconic charm while enhancing the experience to new heights – a perfect fusion of familiarity and fresh innovation.

The competition brought together 30 elite teams from five continents, showcasing the fast-paced, high-intensity format characterizing rugby sevens.

The atmosphere was electric, with passionate fans from around the world filling the stands and reaffirming the city's status as the spiritual home of rugby sevens and a key destination on the global rugby calendar.

In the men's Cup Final, Argentina triumphed over France in a thrilling contest, while New Zealand's women secured a dramatic victory against their fierce rivals, Australia. Both finals showcased the intensity and excitement that make rugby sevens a global phenomenon.

Hong Kong, China's rugby teams, significantly impacted the Melrose Claymores finals, dominating on home soil. The men's team, as defending champions, achieved a commanding victory over the national team. Meanwhile, the women impressed with their exceptional performance, defeating Kazakhstan to secure their first Melrose Claymores title.

Off the pitch, an exceptional lineup of entertainment energized fans throughout the weekend. Friday began with a vibrant opening ceremony featuring traditional lion dances and a stunning laser display.

On Saturday afternoon, Italian pop sensation GALA dazzled during the parade of local mini-rugby players.

DJ Pete Tong transformed the evening into a lively dance party with his Ibiza anthems set.

Sunday's entertainment peaked with the Kaiser Chiefs captivating the crowd with their iconic anthems.

Earlier, Cathay Pacific added a nostalgic touch with a flyover of Victoria Harbour to celebrate Kai Tak Airport's 100th anniversary.

The 2025 edition of the Hong Kong Rugby Sevens celebrated the tournament's rich legacy, blending world-class rugby with unforgettable entertainment.

Once again, the Hong Kong Sevens proved why they are one of the most iconic events on the global sporting calendar.

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