

The Arrival of the Hydrogen Society: Why Hydrogen Now

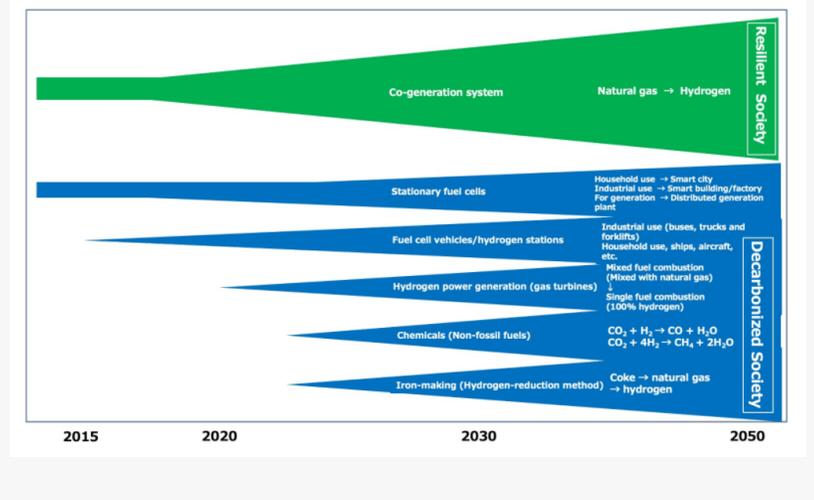
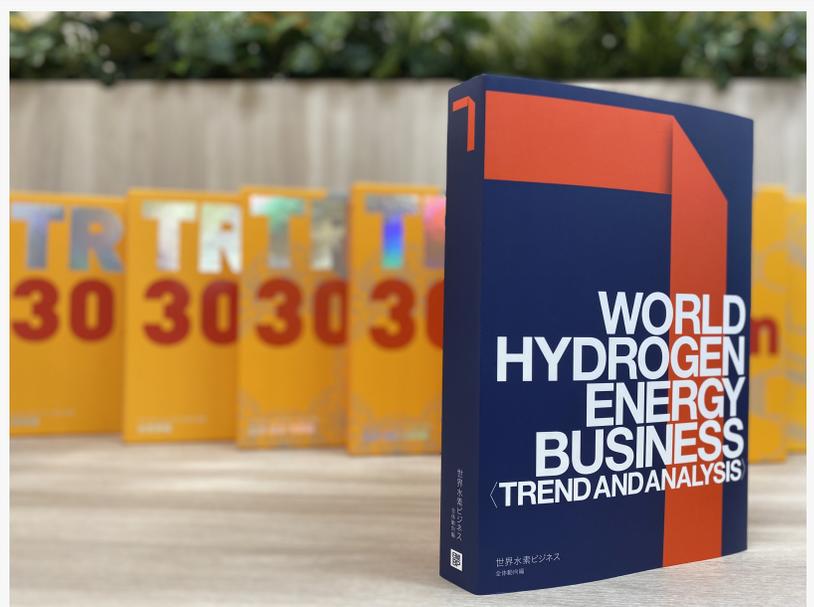
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/EINPresswire.com/ -- Our society is being forced to recognize that we need to live with the COVID-19 pandemic, and the momentum is increasing to reexamine and reform the fundamentals of our social structure. For example, no one truly had stepped forward to implement the work-from-home system or online meetings before the pandemic, although a technical environment existed that would have allowed these systems to be easily implemented. Work-from-home and online meetings, however, have become business norms over the last six months. The concept of the "Japan Digital Agency" promoted by the new Suga administration is also an extension of such changes.

So why is [Nikkei BP Intelligence Group](#) currently tackling a hydrogen project? It is because CO₂ has become a major common issue for all human beings.

The international community has reached a consensus that realizing a "decarbonized society" is an essential goal as we progress toward 2050. Meanwhile, the importance of preparing for disasters such as direct typhoon hits and huge earthquakes has been emphasized for a long time. The realization of a "resilient society" is a goal that requires immediate attention.

Hydrogen provides solutions to these two goals at the same time. The envisioned "hydrogen society" is equal to a "decarbonized society," which also means a "resilient society."



□From Technology Development to Market Development□

Fortunately, Japan has a wealth of technologies for hydrogen applications. Japan's long-term development measures led by NEDO (New Energy and Industrial Technology Development Organization) have been successful, and the technologies for "making, storing, transporting and using" hydrogen have reached a level that is envied by the world.

Although Japan is a leader in technological development that is ahead of most of the world, it is becoming clear that the measures for developing the hydrogen market are still insufficient.

As one example, Japan currently has 157 commercial hydrogen stations, including those under construction. This means that we have almost achieved the 2020 target of 160 stations on the national roadmap. On the other hand, the number of fuel cell vehicles sold in Japan amounts to about 4,000 units - a level that is still far below the target of 40,000 units. To date, only around 300,000 ENE-FARM (home-use fuel cell) system units have been installed - a figure that is also distant from the 2020 target of 1.4 million units. It is said that the imbalance between supply and demand might have resulted from the assumption that the market would grow organically once technologies were implemented.

In addition, regulatory issues pose challenges through various hydrogen demonstration projects. Society is not prepared to launch many projects, even after demonstration tests of related technologies. It is necessary to promote the use of hydrogen capitalizing on new fields of technology and regional characteristics.

□Watch Global Trends□

On August 6, 2020, the Nikkei newspaper printed an article titled "EU Eyes the Top Spot in Hydrogen Applications as a Measure for Zero Emissions." The EU nations have agreed to allocate 30% of the mid-term budget over the next seven years from 2021 for climate change solutions, with the goal of reducing greenhouse gas emissions to virtually zero by 2050. This is said to be the first-ever approach in which the EU would assign part of its budget directly to climate change solutions.

Europe, which is leading the way in the use of renewable energy, acknowledged the effectiveness of hydrogen at an early stage as a mid-to-long term large-capacity energy storage system to address increasing use of renewable energy. Furthermore, it is positioned as a means of cross-cutting energy conversion (sector coupling) in a way that involves not only the electricity sector but also the transportation and heat utilization sectors. The production of electrolyzed hydrogen, which is competitive with cheaper renewable energy electricity, has a better outlook in the near future, assuming that the existing pipelines and storage facilities for natural gas will be fully utilized (mixed use with natural gas, partly converted to facilities dedicated to hydrogen). It is no mistake to say that Europe is taking a full-fledged approach to the use of hydrogen.

Even though the United States withdrew from the Paris Agreement under the Trump administration, some state/local governments and companies, such as the State of California, are actively working on their own approaches. With disasters such as hurricanes and wildfires occurring in rapid succession and large-scale power outages taking place frequently, the need for hydrogen-based microgrids is increasing.

□Pay Attention to the Moves of China□

On September 23, 2020, the Nikkei newspaper published an article titled "'Zero CO2 Emissions by 2060: China's President Xi Speaks on Environmental Issues at UN General Assembly, Drawing Attention of European States.'" President Xi Jinping of China expressed the goal of virtually zero CO2 emissions by 2060. He said, "China will promote the green recovery of the global economy," which stimulated the interest of European states that have keen awareness of environmental issues.

This statement can be said to represent a welcome development for the global community, since China has remained on the side of "developing countries" in terms of environmental issues. It can be regarded as a change in China's national policy, under which the attitude that "developed countries should make a move first" has been maintained for years.

For the future, we need to keep our eyes on the moves of China, which is good at fostering industries with a top-down approach. China's 14th five-year plan, which can be said as the culmination of industrial development measures, will start in 2021. In terms of renewable energy use, China has one of the world's leading companies in both solar and wind power. China is the largest market for automobiles, strongly leading the world in the field of electric vehicles (BEV). Without a doubt, the next big market will be hydrogen.

The policy is changing to abolish purchase subsidy systems like that applicable to BEV, and to allocate funds for constructing supply chains. Currently, FCEVs are only being imported from overseas, and subsidies can only contribute to increased sales of imported vehicles. The idea is to switch to a situation in which China's domestic industry is fostered. The "National Hydrogen Model City," which will focus on investing related funds, is already being selected.

□Information Hub for Creating a Major Movement□

Thus far, Japanese technologies have provided answers to issues in various fields. However, what is necessary now for the use of hydrogen will be the creation of a new market. To realize a hydrogen society, it is necessary to work on market development while also fostering technologies for "making, storing, transporting and using" hydrogen. We need to pursue the possibility of collaborating with regional governments to create platforms for building a hydrogen supply chain suited to local production for local consumption, expanding the scale of products and services and collaborating in international projects to work on cost reduction.

Nikkei BP Intelligence Group hopes to serve as an information hub to bring about significant progress toward the realization of a hydrogen society.

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