Global hydrogen appetite sees healthy growth

World consumption of both captive and merchant hydrogen will increase 3.5% annually through 2018 to more than 300 billion cubic meters, according to World Hydrogen, a new trends report from market research firm The Freedonia Group Inc., Cleveland. Gains will be driven by increasing use in refinery hydroprocessing, especially in developing Asian countries. According to analysts, the merchant market for hydrogen will expand more than 5% annually as the need for hydrogen in petroleum refineries exceeds available captive resources.

Over the past two decades, motor vehicle emissions regulations in developed countries have led to the need for low-sulfur and ultralow-sulfur gasoline and diesel fuels, greatly increasing hydrogen consumption in petroleum refining. This trend will continue to drive demand going forward as developing countries address air quality issues by enacting more stringent clean fuel regulations. Additionally, a shift in the world’s crude oil supply toward heavier, lower quality crudes and rising demand for distillate fuels will support increased use of hydrogen in refinery processes to break down heavier petroleum fractions into more valuable products.

In addition to refining needs, hydrogen is also heavily used in chemical production, as well as in the metals, electronics, and thin-film solar industries. Further, the global adoption of hydrogen energy technologies continues to make headway and fuel cells are expected to find increasing mainstream commercial use. Despite technical challenges, the emergence of a hydrogen market for fuel-cell-powered vehicles remains a possibility, say analysts.

Although the U.S. will remain the world’s largest hydrogen market in volume terms, the greatest share of growth through 2018 is expected to occur in China. With environmental concerns receiving heightened attention, the country is expected to aggressively target motor vehicle emissions by enacting and enforcing tighter clean fuel regulations. Countries such as India and Russia, which will seek to export ultra-low-sulfur fuels, will experience the fastest gains. In contrast, demand for hydrogen in most developed countries will grow only modestly, if at all. However, the outlook in the U.S. and Canada will be more positive due to relatively low energy and feedstock prices. Consumption in Western Europe and Japan is expected to be weak as the refining and chemical industries in these countries face stagnant domestic demand combined with a highly competitive global market.

The merchant hydrogen industry is highly concentrated among four leading suppliers—Air Products, Air Liquide, Praxair, and Linde—together accounting for 90% of sales. For more information, call 440.684.9600 or visit freedoniagroup.com.