**时文阅读|绿氢是未来趋势**

在能源供应日益紧张的今天，开发新能源的任务迫在眉睫。作为公认的清洁能源，氢能正以其零碳的优势在世界能源舞台上脱颖而出。传统的化石燃料制氢过程中会排放大量二氧化碳，污染环境，与节能减排的理念相左。而水电解制氢的原料易得，节能环保。随着未来氢能产业的发展，利用可再生能源电解水制氢将成为主流工艺。

When hydrogen burns, the only by-product is water — which is why hydrogen has been an attractive zero-carbon energy source for decades. Yet the traditional process for producing hydrogen, in which fossil fuels are exposed to steam, is not even remotely zero-carbon. Hydrogen produced this way is called gray hydrogen; if the CO2 is captured and sequestered（封存）, it is called blue hydrogen.

Green hydrogen is different. It is produced through electrolysis（电解）, in which machines split water into hydrogen and oxygen, with no other by-products. Historically, electrolysis required so much electricity that it made little sense to produce hydrogen that way. The situation is changing for two reasons. First, significant amounts of excess renewable electricity have become available at grid scale; rather than storing excess electricity in arrays of batteries, the extra electricity can be used to drive the electrolysis of water, “storing” the electricity in the form of hydrogen. Second, electrolyzers are getting more efficient.

Current renewable technologies such as solar and wind can decarbonize（脱碳）the energy sector by as much as 85 percent by replacing gas and coal with clean electricity. Other parts of the economy, such as shipping and manufacturing, are harder to electrify because they often require fuel that is high in energy density（密度）or heat at high temperatures. Green hydrogen has potential in these sectors. The Energy Transitions Commission, an industry group, says green hydrogen is one of four technologies necessary for meeting *The Paris Agreement* goal of decreasing more than 10 gigatons of carbon dioxide a year from the most challenging industrial sectors, among them mining, construction and chemicals.

Although green hydrogen is still in its infancy, countries — especially those with cheap renewable energy — are investing in the technology. Australia wants to export hydrogen that it would produce using its plentiful solar and wind power. Chile has plans for hydrogen in the country’s arid north, where solar electricity is abundant. China aims to put one million hydrogen fuel-cell vehicles on the road by 2030. All of which is why, earlier this year, Goldman predicted that green hydrogen will become a $12-trillion market by 2050.

**阅读短文并回答问题**

**1. What do we know about green hydrogen?**

A. It can be made from fossil fuels.

B. It can be extracted from blue hydrogen.

C. It consumes little electricity when produced.

D. It releases nothing except water when burning.

**2. What makes electrolysis for producing green hydrogen accessible?**

A. Sufficient electricity and efficient device.

B. The extending life and capacity of batteries.

C. The lower cost of alternative clean energies.

D. Financial support from all sectors of society.

**3. What is paragraph 3 mainly about?**

A. The advantages of green hydrogen.

B. The potential of current green energy.

C. The necessity of reducing carbon dioxide.

D. The results of using wind and solar power.

**4. What can we infer about green hydrogen from the last paragraph?**

A. It will dominate the energy market.

B. It will fill a big gap in renewable energy.

C. It will develop fast in energy-rich countries.

D. It will gradually replace wind and solar power.

【**参考答案**】DAAB

**生词**

1. by-product *n*. 副产品

2. grid *n*. 输电网

3. electrolyzer *n*. 电解装置

4. electrify *v*. 使通电

5. gigaton *n*. 十亿吨

6. arid *adj*. 干旱的

**语块**

1. be exposed to 使接触

2. split sth. into. sth. 使分开

**长难句**

The Energy Transitions Commission, an industry group, says green hydrogen is one of four technologies necessary for meeting *The Paris Agreement* goal of decreasing more than 10 gigatons of carbon dioxide a year from the most challenging industrial sectors, among them mining, construction and chemicals.

【分析】“green hydrogen is one of four technologies…construction and chemicals”为“says”的宾语从句，宾语从句的主干为“green hydrogen is one of four technologies”。“necessary for meeting…construction and chemicals”为形容词短语，作后置定语，修饰“four technologies”；“among them mining, construction and chemicals”为独立主格结构，作伴随状语。该独立主格结构属于无动词的独立主格结构，其形式为“代词＋介词短语”。

【翻译】工业组织能源转型委员会表示，要实现《巴黎协定》的目标，即每年从采矿业、建筑业和化工业等最具挑战性的行业中减排超过100亿吨的二氧化碳，绿氢是四项必要技术之一。

** 知识拓展**

1. hydrogen energy

氢能，指氢和氧进行化学反应释放出的化学能，是一种清洁的二次能源，具有能量密度大、零污染、零碳排等优点。氢能在21世纪有可能在世界能源舞台上成为一种举足轻重的能源，氢的制取、储存、运输、应用技术也将成为21世纪备受关注的焦点。作为一种清洁、高效、安全、可持续的新能源，氢能有助于解决能源危机、环境污染等问题，是人类的战略能源发展方向。

2. *The Paris Agreement*

《巴黎协定》是全球195个国家在巴黎气候变化大会上通过，于美国纽约签署的气候变化协定。该协定为2020年后全球应对气候变化行动作出安排。《巴黎协定》的长期目标是将21世纪全球平均气温较前工业化时期上升幅度控制在2摄氏度以内，并努力将温度上升幅度限制在1.5摄氏度以内。

声明

原文选自*SCIENTIFIC AMERICAN*，试题与内容讲解由天学网教学研究中心编写。