

Hydrogen 2.0 Overview

Exceptional Energy Finally Made Possible

Hydrogen is the universe's most abundant element. It is also the world's cleanest source of energy if you can find an efficient and safe way to harvest, store, transport, and release that energy.

Hydrogen 2.0™ is a new and sustainable way to deliver hydrogen energy on-demand, where and when it is needed, unlocking its potential as an affordable, emission-free and universally available alternative to today's hydrocarbon economy.

Significant breakthroughs in the areas of production and consumption will soon allow hydrogen to be supplied as part of a clean, efficient, and low-cost process. This new Hydrogen 2.0 paradigm is based on the inexhaustible supply of hydrogen from water and a proprietary extraction process that is designed to make it cost-competitive to other forms of energy. Systems based on Hydrogen 2.0 processes will enable the generation of hydrogen on-demand, at the point-of-use where and when it is needed, without special infrastructure requirements for storage and distribution.

Hydrogen 2.0 holds the potential to establish the universe's most abundant element as a practical energy source to power a new generation of hydrogen-fueled applications for electrical power generation, heat generation, transportation, and even drinking water.

The Defining Characteristic of Hydrogen 2.0

In contrast to traditional hydrogen energy produced by electrolyzers, steam reformation, or the gasification of coal, a Hydrogen 2.0 energy system is characterized by the following:

Clean. Unlike traditional hydrogen production processes that emit 5 kilograms of greenhouse gases for every 1 kilogram of hydrogen produced, Hydrogen 2.0 production processes generate hydrogen without the use of chemicals or electrolysis and with negligible greenhouse gas emissions. On the consumption side, hydrogen fuel returns only water back into the atmosphere. The use of the Hydrogen 2.0 system, therefore, can eliminate both the ecologically damaging greenhouse gasses and the health-damaging particulates emitted by coal, diesel, and other hydrocarbon-based fuels.

On-Demand. Systems using Hydrogen 2.0 enable the localized production of hydrogen on-demand, meaning hydrogen is generated on-site or on-board where and when it is needed. In contrast, traditional hydrogen production is a centralized process that requires a specialized and expensive infrastructure for safe storage and distribution that constrains hydrogen's availability and efficiency.



Affordable. If economically scaled, Hydrogen 2.0 can be produced in abundance at a cost that is competitive with other energy alternatives. It is an energy source with a potentially unprecedented level of predictability in pricing stability, since it does not require exploration or drilling and can be manufactured 24/7 anywhere.

Available. Unlike other forms of renewable energy, Hydrogen 2.0 offers uninterrupted availability, any time of day, or in any weather condition. Its water-based approach will allow the benefits of Hydrogen 2.0 to be shared worldwide without the need for the highly expensive infrastructure required for the transportation and distribution of traditional hydrogen, making it ideal for developing economies.

Infrastructure. Without sufficient infrastructure in place, traditional hydrogen, centrally produced then transported as a compressed gas or in its liquid state, has struggled to become a broad-scale reality. The cost of such an infrastructure and the scale at which it must be rolled out has proven prohibitive, limiting traditional hydrogen as a small, niche energy source. Hydrogen 2.0 can overcome these problems through the localized production of hydrogen at the point of use.

Safety. Hydrogen 2.0 introduces a novel way to extract hydrogen directly from untreated seawater at room temperature and without pressure. Its on-demand and on-board nature mean that hydrogen is converted into a gas at the point of use, thus, eliminating any requirements for specialized storage and transportation. Hydrogen 2.0 is safe to handle, store and even spill. It is non-flammable and non-hazardous, for people and the environment.

About Joi Scientific

Joi Scientific™ was founded by a group of global business leaders, technologists and social entrepreneurs who believe that plentiful hydrogen holds the key to giving the world a viable, no-compromise energy alternative. The company's Hydrogen 2.0 technology holds the potential to be the world's first hydrogen production process that is on-demand, economically competitive, and environmentally neutral. The company is licensing its Hydrogen 2.0 technology to a wide range of industries including electrical generation, heat generation, transportation, and specialty power. Joi Scientific is headquartered at the Kennedy Space Center in Florida.

www.joiscientific.com

Twitter: @JoiScientific

Media Contacts

Vicky Harris
Joi Scientific
321.506.4592
vicky@joiscientific.com

James Kennedy
Joi Scientific
+44 (0)7809 495 759
james.kennedy@joiscientific.com

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