Traditional Hydrogen Challenges

Hydrogen is the universe’s most abundant element and the world’s cleanest source of energy. But its use has been restricted by challenges in how to harvest, store, transport and release that energy. Historically, the energy required to harvest hydrogen from water using electrolysis made it expensive and only used for very specialized applications. Traditional hydrogen production based on steam reformation of natural gas or through the gasification of coal is a centralized process that requires a specialized and expensive infrastructure for safe storage and distribution that further constrains hydrogen’s availability and efficiency.

What is Hydrogen 2.0?

Hydrogen 2.0™ is the localized production of hydrogen energy at the point-of-use —safely, affordably and with no new carbon emissions. It is based on a very efficient extraction technology to produce hydrogen gas from water on-demand, where and when it is needed.

A Hydrogen 2.0 energy system is characterized by the following:

Zero Emissions. On the production side, the Hydrogen 2.0 production process generates hydrogen without the use of chemicals or electrolysis. On the consumption side, hydrogen fuel returns only water back into the environment.

On-Demand. Hydrogen 2.0 is characterized for its on-demand production. Systems using Hydrogen 2.0 processes enable the generation of hydrogen on-site or on-board, where and when it is needed.

Affordable. Hydrogen 2.0 can be produced in abundance on a cost competitive basis to other energy alternatives. It is an energy source with an unprecedented level of predictability in pricing stability since it doesn’t require exploration or drilling and is available 24/7 anywhere.

Hydrogen 2.0 benefits:

- **Abundant**
  Turns the planet’s most abundant substance, water, into an inexhaustible supply of clean energy.

- **Easy storage**
  Can be stored, without pressure, at a wide range of temperatures (0°C to 90°C).

- **Existing infrastructure**
  Uses the world’s existing liquid fuel distribution channels so society doesn’t have to wait decades to reap the benefits of a clean, affordable and abundant energy source.

- **24/7 Availability**
  Offers uninterrupted availability and can be reliably produced any time, day or night, in any weather condition, anywhere.

- **Safety**
  Stores hydrogen in a liquid state at room temperature without pressure until the hydrogen is needed.

- **Drinking water**
  Results in pure water when combined with oxygen in the environment.

- **Cleans hydrocarbons**
  Can be used to manufacture synthetic gasoline or to enrich hydrocarbon-based fuels to make them burn cleaner, with less pollution.

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Hydrogen 2.0 Applications

Hydrogen 2.0 enables a new generation of hydrogen-fueled applications for electrical power generation, heat generation, transportation and even drinking water.

Applications for Hydrogen 2.0 energy include:

- Boilers for heat and hot water
- Heat for electrical production
- Energy storage
- Industrial energy
- Combined heat and co-generated power units
- Industrial gases
- Hydrocarbon BTU enrichment (so they burn cleaner)
- Synthetic fuels in both gas and liquid forms
- Fuel cells
- Internal combustion engines
- Clean & affordable energy for developing economies
- Clean drinking water

About Joi Scientific

Joi Scientific specializes in the development of affordable and sustainable solutions for clean energy, water and air. Our mission is to expedite the world’s transition to clean, abundant and affordable hydrogen energy. The company’s technology represents the first ‘no-compromise’ energy solution economically and environmentally to power all kinds of applications to fuel growth and innovation everywhere - in both developed and developing countries.

Headquarters

Our world headquarters is based at the Kennedy Space Center Space Life Sciences Lab located at:

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