



## Renewable Power To Clean Fuels



### RHA Mission

Promote using renewable electricity to produce climate-neutral hydrogen and other energy-intensive products that reduce dependence on fossil fuels.

### Why Now?

What makes this a new opportunity are the investments in Europe that have resulted in dozens of projects built, and dozens more planned. These deployments resulted in economies of scale that dropped the cost of the technology by more than a factor of two in just the last few years. Cost reductions are expected to continue apace. For example, in September 2018 Nel Hydrogen announced a new manufacturing facility that would double world capacity and drop prices by 40%. In July 2018, France announced plans to invest 100 million euros to develop and deploy renewable hydrogen.

European progress outpaces North America due to higher natural gas prices and renewable penetration levels there. Nevertheless, the plummeting cost of the technology, along with growing availability of low-cost wholesale power, make renewable hydrogen an increasingly interesting proposition in North America. Several RHA members are actively engaged in project development today.

The rapid pace of development of the technology in Europe has largely escaped notice among US stakeholders. Policy makers are largely not focused on encouraging the nascent renewable hydrogen industry here. RHA was formed to fill that gap and advocate for the expansion of renewable hydrogen through education, serving as a forum for ideas, and providing a catalyst for combining diverse stakeholder interests into a focused policy effort.

## What is the Renewable Hydrogen Alliance?

RHA is a non-profit 501(c)(6) organization based in Portland, Oregon, established to advocate using surplus renewable electricity to produce hydrogen and derivative products. RHA promotes the production of climate-neutral fuels from renewable electricity.

RHA engages in education and outreach to utilities, the renewable energy and environmental communities, regulators, legislators and others to promote renewable power to climate-neutral fuels as a critical step to reaching climate change goals and reducing dependence on fossil fuels. RHA also serves as a renewable hydrogen information clearinghouse.

## Renewable Hydrogen

### Creating Value from Surplus Renewable Energy

Low-cost wind and solar power are the key to a low-carbon power system. However, the high variability of these resources results in both times of low supply and times when the supply is greater than the demand for power. As we increase our dependence on these resources, the “super-supplies” of low-cost electricity become an increasingly potent opportunity for creating climate-neutral fuels.

Renewable hydrogen is created by using renewable electricity to split water into hydrogen and oxygen. Using renewable electricity to produce hydrogen makes more efficient use of renewable power, reduces curtailments, displaces fossil fuels, bolsters the value of renewable electricity, expands the market for renewable power, and provides flexible loads to balance power grids. Making more efficient and cost-effective use of available renewable electricity is not only a rapidly growing opportunity, it is imperative to reaching climate goals.

### Developing Renewable Hydrogen Markets

Fuel Cell Electric Vehicles operating on hydrogen and leaving only pure water in their wake are drawing a lot of attention lately. Providing a source of low-cost renewable hydrogen for these vehicles is an important RHA objective. And as important as transportation is, it represents only a tiny fraction of today’s hydrogen market. Current industrial hydrogen production—the energy equivalent of 7% of gasoline sales—is almost entirely derived from fossil fuels in a process with a significant carbon footprint. Renewable hydrogen can and must replace hydrogen from fossil fuels. Coupled with other new and expanding markets, from direct injection into natural gas grids to storing wind and solar power over long periods, the potential for renewable hydrogen is enormous.

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## Membership Benefits

Warner RHA dues go to promoting a new billion-dollar-scale industry opportunity that will provide benefits to utilities, manufacturers, developers, contractors, consultants, and the environment. Members get access to a community of similarly interested organizations focused on establishing new clean fuel production facilities based on renewable electricity. Members may participate in RHA committees identifying challenges and opportunities, and help set RHA priorities. Members pool resources for education and policy efforts. It has been said that 80% of success is just showing up—RHA shows up in the media, board rooms, legislatures, and regulatory hearings.

### Member Dues

Member Category	Annual Dues
Large Corporations (> 100 employees)	\$10,000
Smaller Corporations (< 100 employees)	\$2,000
National Nonprofits	\$1,000
Regional Nonprofits	\$500
Students	\$200