I have a few concerns about side effects of promoting hydrogen production from water.
"Hydrogen is difficult to store due to its low volumetric energy density. It is the lightest of and simplest of all elements, being lighter than helium, and so is easily lost into the atmosphere." https://www.twi-global.com/technical-knowledge/faqs/what-is-hydrogen-storage#WhyisitDifficulttoStoreHydrogen
While it's in the atmosphere hydrogen is a worse greenhouse gas then CO2:
"Applying the combined atmospheric effects over a shorter, more relevant timeframe, we estimate the five-year warming power from a pulse of hydrogen relative to CO2 is 20 times greater than current calculations show using the standard 100-year approach.
And when we look at the relative warming impact from continuous instead of pulse emissions — which are more representative of the real world — hydrogen is 100X more potent than CO2 emissions over a 10-year period." https://www.edf.org/blog/2022/03/07/hydrogen-climate-solution-leaks-must-be-tackled
The most severe problem though is that hydrogen in the atmosphere gets blown away by solar wind, this makes any hydrogen leaked a one way reaction resulting in the earth permanently losing water, so if water electrolysis to produce hydrogen goes mainstream it could turn the earth into a desert planet.
"Solar Wind blows some of Earth's atmosphere into space" https://science.nasa.gov/science-news/science-at-nasa/1998/ast08dec98_1
Between not much hydrogen being produced yet and it being easily lost to space out atmosphere hardly has any hydrogen in it.
"Hydrogen is found in great quantities on Earth combined with other elements, such as in water and hydrocarbons, but it is barely present in our atmosphere, which contains just 0.00005%." https://energies.airliquide.com/resources/planet-hydrogen-hydrogen
Since we don't yet have much atmospheric hydrogen to lose in the first place the hydrogen loss problem has been grossly underestimated
"The polar auroral fountain sprays ions - oxygen, helium, and hydrogen - from Earth's upper ionosphere into deep space. The loss is miniscule compared to the immense ocean of air covering our world, but is significant in terms of what drives space weather around our world. (NASA)" https://science.nasa.gov/science-news/science-at-nasa/1998/ast08dec98_1
This is why I believe switching to a hydrogen economy would have devastating consequences for the world.
A much safer alternative to combat global warming would be to encourage the use of white or other reflective paint for cars, roofs, and canopies to increase the albedo [reflectiveness] of the earth, reflected light then goes back out to space bypassing the greenhouse effect. https://www.npolar.no/en/fact/albedo/
Thank you for considering my concerns