

**BIPR Webinar: The Johns Hopkins SAIS Global Risk Conference - Hydrogen.
A Zero Carbon Energy Vector Whose Time Has Come**

April 23, 2020

Marco Dell'Aquila (Chair), Senior Adjunct Professor of Energy, Resources and Environment, Johns Hopkins University SAIS Europe; Chairman, inspiratia

Christopher Jackson, CEO, Protium Green Solutions

Patrick Molloy, Senior Associate, Rocky Mountain Institute

Markus Wilthaner, Associate Partner, McKinsey & Company

Hydrogen is the most abundant element in the universe. It has been used in industrial processes for decades, but has yet to see widespread adoption as a method for decarbonizing our energy systems. As the cost of producing so-called 'green' hydrogen (in which a renewable energy source separates hydrogen from water through electrolysis) decreases, it will become a viable complement to renewables. In this installment of the Johns Hopkins SAIS Global Risk Conference, a panel of four energy experts chaired by Professor Marco Dell'Aquila, explained the advantages of hydrogen and how it can play an important role in the transition to a zero carbon economy.

To open the discussion, Professor Dell'Aquila posed the question: why has there been renewed interest lately in hydrogen from policymakers and clean energy experts? The answer, the panel agreed, is a combination of public policy and economics. First, many governments are getting serious about decarbonization. So far, nearly 70 countries have committed to net-zero emissions in the future, and achieving that outcome will not be possible without hydrogen. At the same time, governments (including the U.S., China and South Korea) have included hydrogen in their industrial policies in anticipation of the next wave of strategic energy technologies. Second, the cost of producing electricity via renewables continues to fall. Those cost-savings will eventually render green hydrogen more competitive at scale for applications in energy storage and decarbonization.

Once green hydrogen becomes cheaper and more abundant, it will have the potential to transform several energy-intensive industries. Its impact will be most visible as a fuel in transportation because of its advantages in weight, range and duration of refueling. In the personal mobility sector, several automakers are developing hydrogen fuel cell-powered vehicles as an alternative to battery electric vehicles. In the commercial mobility sector, hydrogen-fueled trucks, planes and cargo ships could one day enable companies to drastically reduce shipping costs. But as with all new technologies, establishing the infrastructure required to produce or use green hydrogen at scale would require first-movers to take considerable risks. So what incentives are there for industry to transition and how can government facilitate the shift? On the business side, hydrogen is a proven, low-cost decarbonization method. It is in the long-term interest of firms to begin lowering their future exposure to the carbon content of their goods, especially as more governments introduce carbon taxes. In the meantime, governments should provide clear regulatory guidance and lift potential roadblocks to adoption, e.g., state-aid laws in the EU.