Topsoe is innovating the pathway for decarbonization

Submitted by: TBD Media Group Ltd.
Wednesday, 26 July 2023

Innovation and perfecting chemistry for a better world is at the heart of the Danish engineering company Topsoe's business and its mission to accelerate decarbonization. With the world being at a critical point of no return to take urgent action against climate change, it is time to drastically reduce greenhouse gas emissions.

As part of TBD Media's Innovation and Disruption Leaders Campaign, aimed at recognizing and celebrating industry's most innovative and disruptive leaders and highlighting their unique perspectives, strategies, and approaches, Topsoe has shared insights and progress on solutions to decarbonize the parts of society where direct electrification will not be an option in a foreseeable future.

"There is a critical need to scale up renewable energy and electrolysis, as well as ensure the right framework conditions and incentives. We need radical change and leadership to drive the green energy transition. With highly innovative technology, Topsoe is determined to solve the challenge of decarbonizing the hard-to-abate sectors," says CEO of Topsoe, Roeland Baan.

Heavy industry and transportation, also known as the hard-to-abate sectors because they are difficult to electrify, are responsible for around a fourth of global greenhouse gas emissions. To decarbonize sectors such as aviation, there is a need for solutions to bridge the gap between renewable energy and e.g., the fuel tank of an airplane.

Catalysis technology, electrolyzer capacity, Power-to-X, and Bio-to-X all play a vital part in this. Solutions that Topsoe specializes in creating and scaling to transform renewable electricity, biomass, and waste into green hydrogen, green ammonia, eMethanol, sustainable aviation fuels, and biofuels that will power a sustainable future.

Topsoe is currently building the world's first Solid Oxide Electrolyzer Cell (SOEC) manufacturing facility at industrial scale with the potential to be a gamechanger for Power-to-X.

"Topsoe's SOEC electrolyzer technology is up to 30% more efficient than competing electrolyzer technologies. More than 90% of the renewable electricity that enters the electrolyzer is preserved in the green hydrogen it produces. Meaning it has lower power consumption and higher output – making the most of the renewable power needed for the process and leaving a very small environmental footprint," says CCO of Power-to-X at Topsoe, Sundus Ramli.

Air travel is one of the heavy emitters Topsoe is working to abate. Sustainable aviation fuel has the potential to cut aircraft CO2 emissions by over 80%, and with eFuels made from renewable power it is close to 100%.

"The solutions are already here and proven. The challenge is to scale and commercialize in order to accelerate and increase impact. For sustainable aviation fuel, this means we need greater effort to commercialize approved pathways, greenlight new pathways, and diversify used and permitted feedstocks," says CCO at Topsoe, Elena Scaltritti.

Topsoe is one of the few companies capable of providing the insights and technology needed to facilitate the production and large-scale availability of next-generation fuels and chemicals.

To learn more about how Topsoe is decarbonizing, view the documentary and visit www.topsoe.com.

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