SeeO2 Energy Inc.:

Most Innovative Energy Conversion Specialists - Canada

In a world where most energy production comes from fossil fuels, carbon dioxide is not just released into the atmosphere, it is a waste product of no use to anybody. What if it could be made useful? This is the question asked by SeeO2 Energy Inc. of Canada, which they then decided to answer. We took a closer look to find out what form that answer took.

Since being launched in April 2018, SeeO2 has garnered a great deal of press within the energy industry. The tempting prospect of a process that can make a profit from greenhouse gasses is more than most companies can afford to miss out on. With most energy being generated from fossil fuels, the release of carbon dioxide (CO2) was seen as an inevitable side effect of producing enough energy to sustain the incredible, and rising, rate of human consumption. SeeO2 saw a future in which CO2 could be collected, broken down and used as part of a range of chemicals.

The brainchild of CEO Paul Addo, PhD., CTO Beatriz Molero, PhD. and Advisor Viola Birss, PhD., SeeO2 was the almost inevitable result of their join interests in CO2 conversion and fuel cells. It was Drs. Molero and Addo who gained the Mitacs/ ATCO Elevate Postdoctoral award, which allowed the team to work on the scaling up and commercialization of the proprietary electrocatalyst and devices that they had developed alongside Dr. Birss.

This high-performance electrolysis system, based on a patented catalyst material, is the heart of the technology used by SeeO2. It allows the electrochemical conversion of water (H2O) to hydrogen (H2) and CO2 to carbon monoxide (CO). It also allows CO2 and H2O to produce syngas, a mixture of CO and H2. As a notoriously stable molecule, it can be hard to break the bonds that hold CO2 together, but SeeO2's catalyst manages this with ease.

All the products of the catalyst process can be used for various applications, or further converted to renewable natural gas, methanol and ammonia to name but a few. When operated in the fuel cell mode, SeeO2 technology can be used to electrochemically convert H2, CO2, syngas and methane to power and heat for off-grid or remote customers. Perhaps the most exciting usage of converted CO2 is the potential to form materials like green plastics and polymers. Far from a liability to the planet, CO¬2 now has the potential to become a profitable resource while lowering the carbon footprint. The conversion unit is designed to run on electricity, with the capabilities of renewable energy built into its design. Running on renewable sources such as solar and wind, it would be possible to store this newly gained energy from CO2 rather than wasting it.

Understandably, the appeal of this technology has not just got a local appeal, with interest being expressed in America, Europe and Asia. Currently, tests are underway with a US-based green plastics producer and ATCO Energy, a natural gas and electricity retailer who are a key partner with SeeO2's business. Next year, SeeO2 will test pre-commercial units in association with Technology Centre Mongstad (TCM) in Norway

Shipments on a commercial level are expected to begin in 2021, and will no doubt change the way in which energy is used and generated.

The word innovative should not be used lightly. It certainly applies to SeeO2, and their ground-breaking business. What lies ahead of this company are a set of incredibly exciting prospects that could change the face of the energy industry. As they look to expand and explore new territory in the coming months, we can't wait to see what they do next.

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