The George Olah Renewable Methanol Plant
Demonstrating industrial scale production of clean fuel from CO2 since 2012

The George Olah Renewable Methanol plant was commissioned in 2011, following years of development which included the construction of a lab scale pilot, catalyst testing, chemical synthesis conditions studies and fund-raising. Its construction marked a significant milestone in the field of carbon capture and utilization as it was the first industrial scale production facility ever built which utilized CO2 waste gas as a resource for methanol production.

Four years later, the technology’s modular design of the plant and inherent scalability was leveraged to scale production from 1300 to 4000 tons per year which translates into a recycling of 5,5 tons of carbon dioxide emissions. The production unit captures carbon dioxide from flue gas released by an adjacent geothermal power plant, borrowing the carbon dioxide molecule which otherwise would have been released into the atmosphere.

In CRI’s process, carbon dioxide is purified to make it suitable for downstream methanol synthesis. Following adequate compression, syngas containing hydrogen generated by electrolysis of water and carbon dioxide are catalytically reacted to convert it into methanol. Water content is removed by distillation in the last process module. The reaction is highly exothermic which allows for heat to be recovered from the reactor to supply steam to the distillation unit. The production process creates no toxic by-products as the sole chemical released is oxygen following the electrolysis process.

An independent audit performed by SHS Germany using a protocol established by ISCC certifies that the plant production releases 90% less carbon dioxide than the use of a comparable amount of energy from fossil fuels. The George Olah Renewable methanol plant demonstrates in an actual industrial setting the technical, economic and environmental benefits associated with adapting CRI’s Emissions-to-Liquids technology.

Through the operation of the plant, Carbon Recycling International has gained unique experience and know how inaccessible to any other technology provider. This experience has allowed the company to create a standard modular plant designs with a larger production capacity, up-scaling solution and optimize the production process to be applicable to the needs of diverse industries.