

Valorisation Carbone Québec
Results from the largest CO₂ capture and reuse project ever

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Abstract

In 2017, the Québec Government allocated \$15M towards a CO₂ capture and reuse project led by CO₂ Solutions and named *Valorisation Carbone Québec (VCQ)*. VCQ plans to demonstrate integrated CO₂ capture and reuse at large scale with the aim of convincing emitters to adopt the demonstrated CO₂ capture and reuse technologies for subsequent commercial deployment. The uniqueness of VCQ arises from two aspects: its leadership from the private sector while being funded publicly and its ambitious timeframe of only twenty-four months. In September 2017, VCQ had engineered, built, installed and operated the greenest ever CO₂ capture unit without any atmospheric emissions or solvent degradation products. The project location is at Chimie Parachem, the VCQ host plant in Montreal East. Early in the second quarter of 2018, a significant number of CO₂ conversion units are planned to be installed downstream of the capture unit. At the moment, four different products or conversion routes have been confirmed and are either being implemented or under construction. More technologies are being evaluated and VCQ expects to demonstrate between six to eight CO₂ uses routes. The CO₂ capture unit implements the CO₂ Solutions Inc. enzymatic CO₂ capture process and uses its existing 10 tpd demonstration capture unit as a starting point. The unit is being upgraded within the VCQ project to integrate recent technological advances proving it as the only solvent-based capture technology with a positive Life Cycle Assessment. The CO₂ reuse unit(s) will be realized in partnership with organizations providing these reuse technologies with matching maturation level. VCQ ambitions to be the World's leading demonstration CO₂ capture and reuse project. The completion of VCQ will result in meaningful and economically viable impact on the reduction of CO₂ emissions. The presentation will cover the site description, the configuration adopted for capture and conversion of CO₂, the methodology adopted to evaluate the numerous potential technologies for conversion, and the performance obtained from some of the retained technologies.