

## Measurement, Monitoring and Verification (MMV) Methodologies for Implementing Large-Scale CCUS Projects

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Carbon Capture and Storage (CCS) is gaining significant interest as a key technology to lower green-house gas emissions. The case for CCS is developing rapidly as more companies, including finance and resource industries, are embracing the concept of 'Net Zero Carbon by 2050'. Geoscientists bring critically needed expertise to the implementation of CCS, including the full value chain from site selection through operational monitoring, project closure, and de-risking CCS technology in general. New businesses and technologies are needed not only to meet regulatory compliance (storage verification) but also for leak detection and mitigation, source identification and crucial performance validation to drive the improvement of processes and to alleviate any public concerns about this technology. Full deployment of CCS could result in expenditures and a workforce that are comparable in size to the upstream natural gas sector.

Carbon Management Canada (CMC) in collaboration with the University of Calgary, has developed a comprehensive Field Research Station in Newell County in Southern Alberta for the development and advancement of monitoring technologies for verification of secure CO<sup>2</sup> storage. Some examples of geophysical and geochemical techniques will be illustrated in the presentation and what will be re-quired to monitor large-scale CO<sup>2</sup> hubs as they get established in Alberta and elsewhere.