

## November 2021 – CSUR Technical Webinar

### Carbon Capture, Storage & Utilization: A US (Lower 48) Perspective



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**CARBON CAPTURE, STORAGE & UTILIZATION:  
A US (LOWER 48) PERSPECTIVE**

PRESENTED BY  
**DR. MOHAMMAD TAVALLALI, PHD, P.ENG.**  
PRINCIPAL RESERVOIR ENGINEER  
IHS MARKIT

The keynote speaker for the November 9<sup>th</sup> CSUR Technical Webinar was Dr. Mohammad Tavallali, Principal Reservoir Engineer and Lead Reservoir Modelling & Simulation Specialist at IHS Markit's Upstream Oil & Gas Consulting Group in Calgary. The focus of his presentation was on the status and progress of CCUS projects in the United States. As the speaker indicated early in his presentation, these types of projects have been part of the oil & gas industry for decades (mostly in the form of enhanced hydrocarbon recovery or EOR projects). As such, with current environmental and climate change concerns, CCUS projects are essential for the energy industry to achieve adequate energy supply along with decarbonization goals.

As noted by the speaker, the oil & gas industry is responsible for approximately 75% of all emissions globally and there's significant pressure on the sector to reduce these emissions. Although other industries also need to find more sustainable solutions, the energy industry is already moving towards the goal to lower emissions. In fact, data indicates that as a region, North America continues to exhibit a declining trend, while other regions (I.e., China, Russia, Iran) are all showing an increasing trend for emissions. As a result, total amount of GHG's (greenhouse gases) continue to rise globally while being reduced in North America.

Focusing on North America and specifically the United States, Dr. Tavallali provided context with respect to both the sources (natural vs. industrial) and uses (EOR, storage & utilization) for CO<sub>2</sub>. The United States is moving ahead aggressively with complementary regulations that have allowed them to build strategic hubs & pipelines for CCUS projects. In fact, energy companies in the US are re-branding themselves as "Carbon Management" companies by producing carbon-neutral barrels with these types of schemes. Similarly, the potential for CCUS projects in Canada is significant. However, regulations to promote or spur more projects in Canada are lagging. In addition, most carbon capture projects are not yet commercially viable. Therefore, government support with both consistent guidelines and financial incentives are important to initiate more ventures. In the speaker's opinion, this step is critical if we are to achieve our "net-zero" goal by 2050.

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### SUMMARY

Carbon Capture Utilization & Storage (CCUS) is a perceptible solution in CO<sub>2</sub> abatement/intensity reduction if CO<sub>2</sub> utilization demographic fully changes to anthropogenic sources. Currently, North America is leading CCUS projects in

both numbers and volumes, however, a significant scale up is required for CCUS to play a critical role in decarbonization ambitions.

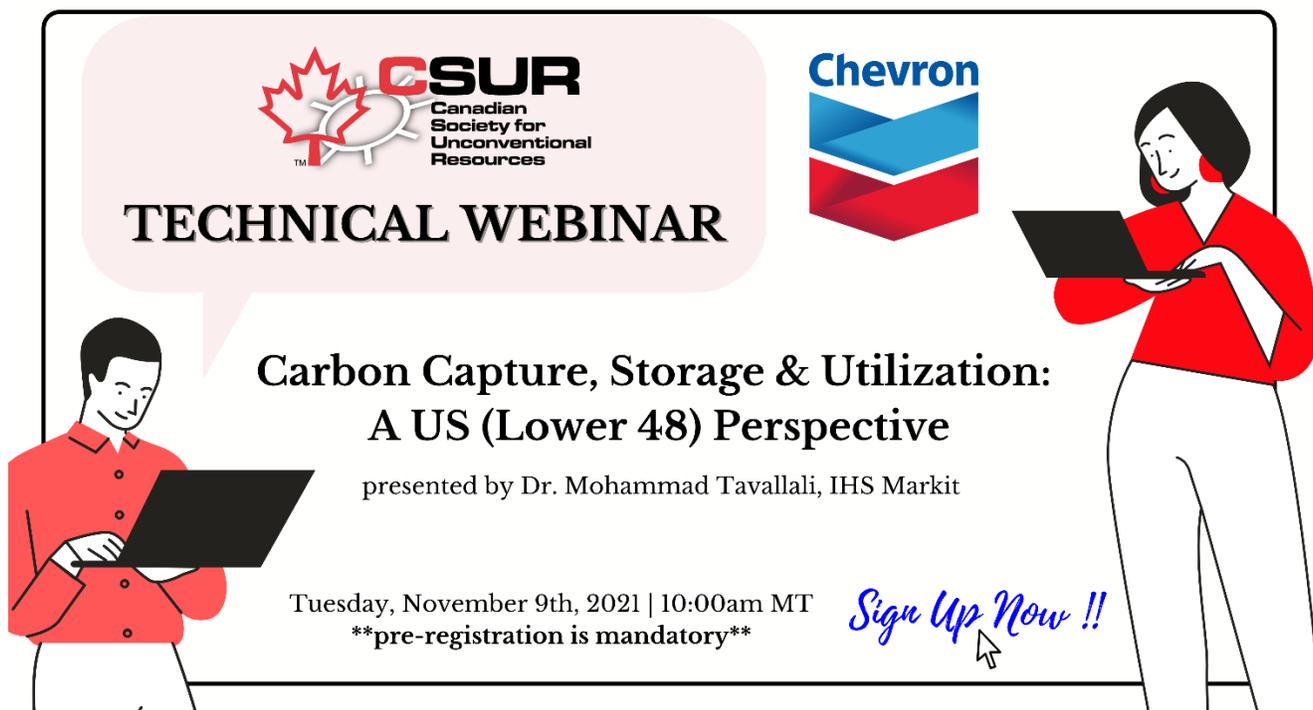
North America offers not only suitable geological sites for CCUS, they are already connected to storage hubs and mature infrastructure. Further, decades of CO<sub>2</sub> injection optimization practices are currently in place and are actively monitored. Site selection and ranking based on key geological and engineering criteria as well as CO<sub>2</sub> and crude oil supply and demand landscape are critical metrics for future investors with decarbonization ambitions.

This study presents a comprehensive full cycle assessment of potential CCUS in US Lower 48. The main objective is to characterize the size of the opportunity located in four main CCUS adaptive regions of the US Lower 48. i.e., Permian, Rocky Mountains, Mid Continent and Gulf Coast.

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**PRESENTER:** *Dr. Mohammad Tavallali, PhD, P.Eng. - IHS Markit*

Dr. Tavallali is the lead reservoir modelling and simulation specialist in the Upstream Oil & Gas consulting group for IHS Markit in Calgary. He is a Professional Engineer who has been in the petroleum industry for over 15 years where he has been a project manager covering a diverse set of challenging engineering evaluations. Mohammad is an expert in analytical and numerical modelling of hydrocarbon recovery and reservoir characterization. In his role, he developed an extensive knowledge of the breadth of Carbon Capture Utilization & Storage technologies and applications in conventional & unconventional reservoirs as well as deep saline aquifers, well spacing optimization for unconventional reservoirs (Permian, Eagle Ford, Bakken, Marcellus, Montney, Duvernay) and SAGD application, waterflood evaluation and optimization, assessment of gas storage application, flow assurance and advanced EOR simulations domestically and internationally.



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**TECHNICAL WEBINAR**

**Carbon Capture, Storage & Utilization:  
A US (Lower 48) Perspective**

presented by Dr. Mohammad Tavallali, IHS Markit

Tuesday, November 9th, 2021 | 10:00am MT  
**\*\*pre-registration is mandatory\*\***

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