



## TNCHE Asia 2024 Conference

#12 Chemical Process Safety Sharing  
(12# CPSS)  
Presenter Bio data & Abstract



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**Presentation Topic** : LOPC in the Age of Decarbonization



### Presentation Abstract:

Decarbonization in the context of Decarbonization and Carbon Capture and Storage (CCS) involves reducing carbon dioxide (CO<sub>2</sub>) emissions from many countries and companies across a variety of industrial processes and energy production by capturing and storing the CO<sub>2</sub>. Hence, these are many of the benefits of decarbonization through CCS such as climate change mitigation, environmental protection, economic benefits, energy efficiency, and regulatory and social benefits.

However, working with the high-pressure CO<sub>2</sub> in CCS or other industrial processes poses several risks. These risks need to be carefully managed to ensure the safety of personnel, equipment, and the environment.

The example primary risks of CO<sub>2</sub> leakage or loss of primary containment (LOPC) such as Health Risks (asphyxiation, toxicity), Physical Risks (Flying objects, material embrittlement), and Environmental Risks (Global warming, Ecosystem Disruption).

This presentation provides insights on applying Computational Fluid Dynamics (CFD) studies to Enhanced Understanding of CO<sub>2</sub> Behavior, and simulate phase changes of CO<sub>2</sub>. This can allow engineers to optimize the design of CO<sub>2</sub> transport and storage systems, analyzing the impact of high pressures and low temperatures on materials and equipment.