

## For Immediate Release

# New Program to Investigate the Role of CCS in Canada's Blue Hydrogen Economy

The Petroleum Technology Research Centre (PTRC) has approved research funding to the Saskatchewan Hydrogen Research Group to conduct a research program investigating the location, production and deployment of a blue hydrogen economy in Saskatchewan, and the role that carbon capture and storage (CCS) will play.

The Saskatchewan Hydrogen Research Group is comprised of seven researchers from the University of Regina (U of R) and the University of Saskatchewan (U of S) with multidisciplinary expertise across various aspects of geological, economic and engineering work. The project will address technological challenges throughout various phases of hydrogen generation, conversion, transportation, and utilization, including:

- Geological exploration of hydrogen sources (Dr. Leslie Robbin, U of Regina)
- Subsurface hydrogen production and storage (Dr. Na Jia, U of Regina)
- Reducing the cost of CO<sub>2</sub> captured for blue hydrogen: a comparative study of competing technologies (Dr. Hussameldin Ibrahim, CETRI, U of Regina)
- Technical and economic feasibility analysis of converting hydrogen sulfide (H<sub>2</sub>S) to Hydrogen (H<sub>2</sub>) technology (Dr. Hui Wang, U of Saskatchewan)
- Hydrogen purification: separation of H<sub>2</sub> from CO<sub>2</sub> (Dr. Jinkai Xue, U of Regina)
- Hydrogen transportation and storage (Dr. Jacob Muthu, U of Regina)
- Subsurface hydrogen flow, storage, and leakage (Dr. Gary Zhao, U of Regina)

This is the first phase of a multi-phased research program, the outcomes of which will have wide-ranging benefits for companies and communities in Saskatchewan, as well as other Canadian provinces. The program will result in the development of advanced hydrogen generation, transportation, and storage technologies that offer enhanced energy efficiency and cost-effectiveness. Blue hydrogen from conversion of natural gas, which employs carbon capture and storage in the process, provides opportunities for utilizing fossil fuels for clean, zero-emissions energy production and transportation.

Many proposed hydrogen production scenarios do not include CO<sub>2</sub> capture and storage as a part of their integrated processes, and PTRC (as a world leader in CO<sub>2</sub> storage project development) understands that the integration of CCS activities in hydrogen production is of critical importance. This research program will look at full chain hydrogen production, from sources to sinks.

By embracing innovations like hydrogen production, Saskatchewan can align itself with evolving environmental regulations, reduce ecological impacts of energy, and position itself as a leader in the transition toward a low-carbon future. When combined with other optimized sustainable energy sources – such as geothermal, wind, solar, and nuclear energy – Saskatchewan can achieve feasible and cost-effective energy utilization and efficient energy management.

Total funding for the program – including matched Mitacs contributions – is \$123,000

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