

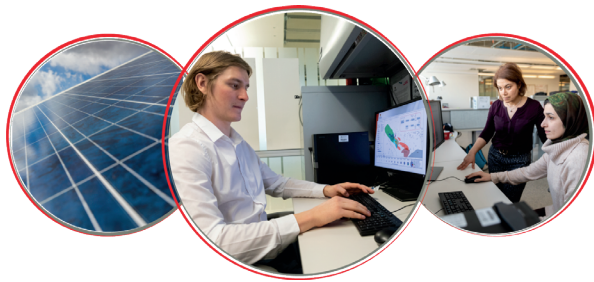
Global Research Initiative in Sustainable Low Carbon Unconventional Resources

Transforming energy research to fuel a clean energy future.

The Global Research Initiative in Sustainable Low Carbon Unconventional Resources (GRI) is a major vehicle to translate lab-based technology innovations into field-deployable solutions. Focused on collaborative research between the world-class innovators from the University of Calgary and international partners, GRI creates a network of global hubs for discovery, creativity and innovation in unconventional energy research.

Originating from the \$75 million Canada First Research Excellence Fund (CFREF) awarded to the University of Calgary in 2016, GRI has made huge progress in generating clean-tech solutions by seeking new, innovative unconventional energy systems that are low or zero carbon.

Cross-Cutting Platform: Technology Assessment



Technology Assessment is a cross-cutting platform that intersects the three pillars of energy research in GRI. The overall goal is to provide environmental and techno-economic assessment of technologies, to aid in identifying environmental and economic hot spots, and to make the technologies more cost effective with reduced GHG emissions.



8
research
areas



5
GRI faculty
members
involved



7
awards
received
by GRI
researchers



9
new jobs
created



12
student
opportunities
created



9
postdoctoral
fellows
recruited



3
Collaborating
Faculties



20
CFREF
supported
proceedings &
publications

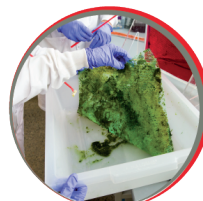
Project Areas



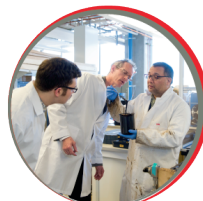
Carbon Capture
and Conversion



Tight Oil and
Gas Operations



Algae Growth



Enhanced Oil
Recovery



Geo-Statistical
Modelling of GHG
Emissions



Oil Sands
Operations

Technology Assessment

In the Technology Assessment team, we perform environmental and techno-economic assessment of new technologies and combinations of technologies to identify environmental or economic “hot spots” to aid efficient and effective technology development. We assess an array of technologies across all three GRI themes related to oil and gas operations, carbon capture, conversion and utilization. Technologies could be well established at an early stage of development or have the potential to be combined with multiple technologies to produce a variety of products. We deliver insights about how to deliver economically and environmentally competitive technologies as well as tools and methods that transparently demonstrate the relative competitiveness using consistent boundaries across a range of technologies.

We successfully work with energy industry partners, Alberta Innovates and Emissions Reduction Alberta to determine the Green House Gas (GHG) intensity of current oil sands operations to evaluate our open source tools as well as to evaluate emerging oil sands technologies from a life cycle perspective. This work has led to the improvement of open source tools and provides credible and transparent estimates of GHG emissions associated with the role that new oil sands technologies can play in contributing to emission reduction in Canada.

Success means identifying economic and environmental hot spots early in technology development, helping to identify potential negative unintended consequences, prioritization of research and development goals and tasks, ultimately helping to deliver technologies that efficiently and effectively get deployed with minimum cost and GHG emissions.

The importance of the research conducted in TACT is helping governments, industries and technology developers to realize the impact of their operations on GHG emissions and to make cost effective adjustments to reduce the cost and carbon footprint. Ultimately this will result in better technologies that can help in achieving emission reduction targets.

Driving Innovation. Fueling Results.

Partner with UCalgary and help us transform energy research to fuel a clean energy future. Get started: ucalgary.ca/gri



**CANADA
FIRST**
RESEARCH
EXCELLENCE
FUND

This research has been conducted, in part, thanks to the Canada First Research Excellence Fund.