

## September 2021 – CSUR Technical Webinar

### Geoscience for an Energy Transition



#### GEOSCIENCE FOR AN ENERGY TRANSITION

PRESENTED BY  
KATHLEEN DOREY, HBSC., P.GEOPH. - PETREL ROBERTSON  
CONSULTING LTD.

In keeping with its mandate of exploring themes related to alternate & emerging energy sources and what this means for professionals in the energy industry, CSUR was pleased to have Kathleen Dorey, Professional Geophysicist & Managing Partner at Petrel Robertson Consulting, for this instalment of their Technical Webinar Series. The speaker's objective was to highlight the role of geosciences in the broader "Energy Transition" context. To establish the importance of geosciences in nascent parallel energy industries, the speaker went through several examples / active projects to illustrate her point.

During the presentation, Ms. Dorey focused on various projects that she's actively managed over the past number of years where her & her organization's competencies, knowledge & experience were utilized for successful completion of the projects, including those in the following sectors:

1. Geothermal
2. Lithium Extraction
3. Helium Exploration
4. Inland LNG
5. Carbon Capture & Sequestration

In addition, the speaker also briefly elaborated on growth in other areas of geoscience applications such as wind, solar, nuclear and pumped storage power (or smaller scale hydropower). It was evident that traditional (& advanced) geoscience techniques & analyses typically applied in the hydrocarbon industry were also critical in ensuring successful outcomes in each of these emerging fields. For example, well direction, well placement, areal mapping, reservoir properties assessment, fracture & fault mapping, seismic analysis, etc. are still relevant in the overall assessment & viability of geothermal projects.

Similarly, in defining Lithium, Helium and Inland LNG prospects, information such as areal extent, reservoir analysis, production rates, geochemical work, stratigraphy & basin settings, seismic & other technical information need to be assembled and de-risked ahead of the financial commitment for the projects. Since these alternate energy sources were not part of the scope in the past and were overlooked around the world in favor of traditional sources, refined & specific protocols have to be established to gather the additional information required for a thorough evaluation (i.e. bypassed pay, specialized lab analyses, basement mapping, revised seismic mapping, etc.).

Finally, Kathleen expounded on the changing landscape with respect to carbon capture & sequestration schemes and the potential tax incentives & technical advantages for organizations. Identifying suitable sites, including assessing for storage capacity, favorable fault geometries, effective seals & cap rock integrity and reservoir extent, are again

considered critical factors that need a comprehensive geoscience review prior to project implementation. As reiterated by the speaker in her concluding remarks, as the energy sources evolve, so does the application of geoscience skills to meet the ever-changing narrative around energy transition.

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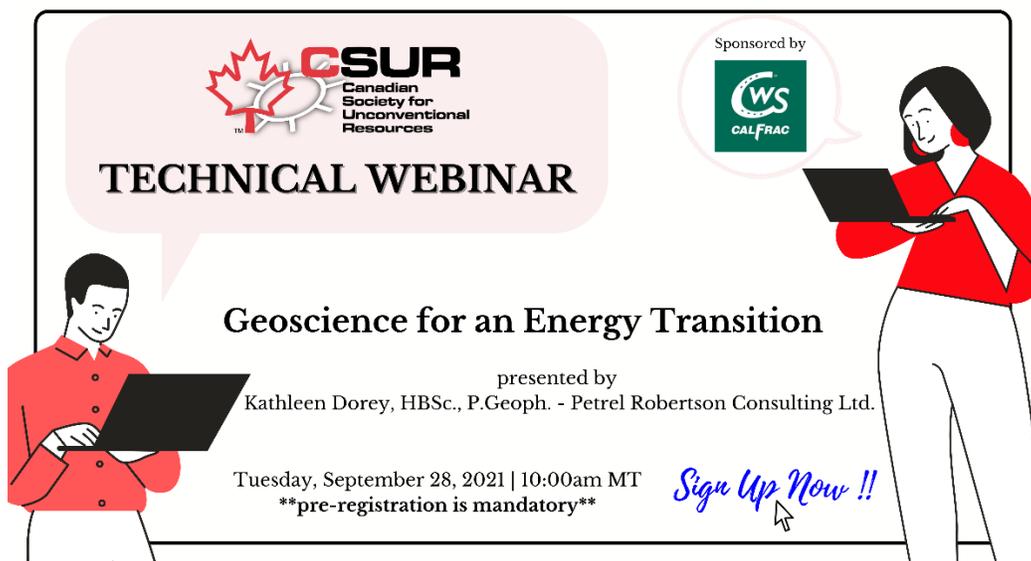
## **SUMMARY**

As the world is slowly transitioning to non-traditional forms of energy use and consumption there are a number of energy related projects that still require high level geoscience applications in Canada and around the globe. In the last few years Ms. Dorey has worked on projects outside the traditional oil and gas space that still required advanced geoscience skills to ensure a high level of project success and timely completion. In this talk she will discuss a number of the projects including exploration and development for geothermal heat/power, lithium resources, helium exploration as well as Inland LNG and carbon capture and sequestration. The innovative applications and advanced techniques used for these projects will be outlined as well as forward looking thoughts regarding demand for geoscience in other areas.

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**PRESENTER:** Kathleen Dorey, HBSc., P.Geoph. - Petrel Robertson Consulting Ltd.

As a managing partner of Petrel Robertson Consulting in Calgary, Canada, Ms Dorey leads a team of geoscience professionals consulting to industry, government, and financial institutions in more than 40 countries worldwide. She works all aspects of energy geoscience, from reservoir analysis through to property evaluations, strategic assessments as well as forming the exploration and development plans for clients. Kathleen has an Honours Bachelor of Science degree from Western University in Canada, is a Professional Geophysicist and is a member or past member of the CSEG, SEG, CSUR, CSPG and APEGA. In her past she has worked as a geoscientist in major operating companies such as Texaco, Conoco and BG International as well as for many junior energy companies. Kathleen has contributed to and presented talks for the CSEG, EAGE, CSPG, CGEF, UGTF, AAPG, Petrotech and APEGA. She is currently the Vice President of the CSEG, Past Chair of the CSEG Foundation, has served as a Director on the GeoConvention Board, has been a Session Chair for the GeoConvention since 2013 and is member of the SEG Council.



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## TECHNICAL WEBINAR

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Tuesday, September 28, 2021 | 10:00am MT  
\*\*pre-registration is mandatory\*\*

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