



**October 11, 2023
Denver, Colorado**

Instructions and Expectations

- In order to be considered as a candidate for the [Oil & Gas Cleantech Challenge](#), completion of all application fields is required. You will find the [application here](#).
- Deadline for application submission: **5:00 p.m. MDT, Monday, August 21, 2023.**
- The review and selection committee is composed of representatives from Chevron, ConocoPhillips, bpx energy, Ovintiv, Altira, Consulate General of Canada - Colorado Energy Office, Colorado Office of Economic Development & International Trade, Holland and Hart, and Holzer Patel Drennan.
- The expectation of the selection committee is that new strategic development partnerships, pilots/trials, commercial contracts and/or potential investment targets will be identified through this process.
- The top 10-12 companies, chosen by our sponsor/judges, will be notified by Tuesday, September 12, 2023 of invitation to the Wednesday, October 11 showcase event.
- Selected companies will have until 5:00 pm on Friday, September 15, 2023 to confirm their attendance to [Joseph Paterson-Roberts](#).
- **If your company is chosen to present, there will be a \$750 USD non-refundable presentation fee.**
- If selected, your pitch presentation will be a combination of a **10 minute (in-person) pitch followed by 10 minutes of live Q&A** with our sponsor/judges.
- If selected, you will be notified in advance of the order and time in which your company will present on October 11, 2023.

Please contact Mary Austin or Joseph Paterson-Roberts with any questions.

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The Oil and Gas Cleantech Challenge: A Product Innovation Showcase and its partners would like to see:

AIR ESPECIALLY METHANE, ETHANE, VOC AND CRITERIA POLLUTANT DETECTION, QUANTIFICATION, OR CONTROL (including but not limited to) Emissions control/reduction/detection, quantification from valves, piping and vented sources; solutions to easily control or mitigate well unloading; control of flashing emissions from tanks, safe control of emissions associated with drilling due to entrained gas in drilling mud, improved pressure relief devices and new designs to contain flashing emissions; smokeless burners for flash emissions combustion; flare control and flare efficiency improvements; flare efficiency metering and destruction efficiency testing at each device; remote sensing; non-emitting field equipment such as chemical pumps. Specific interest in next generation technologies that can replace pneumatic control systems and pneumatic pumps to eliminate methane emissions and gas to liquid vaporization for emissions minimization and flare management.

CARBON CAPTURE UTILIZATION AND STORAGE (including but not limited to): Carbon Capture, Utilization, and Storage (CCUS) encompasses methods and technologies to remove CO₂ from the production streams, particularly small source streams from engines <2000-hp or from the atmosphere. This capture is followed by recycling the CO₂ for utilization and determining safe and permanent storage options.

DIGITAL OILFIELD (including but not limited to) low cost sensors and actuators with data collection, networked for monitoring, optimization and decision making to improve environmental monitoring; low cost hardware for problem detection and spill prevention. [Need to see applications, not just suggestions.]

ENERGY STORAGE (including but not limited to): Large scale battery storage solutions, geothermal, inactive well site solutions, pumped hydro, hybrid renewable systems.

GEOTHERMAL (including but not limited to): Subsurface potential, completions, surface generation, chemical treatment, and emissions controls.

WATER (including but not limited to) Real-time monitoring including efficient sampling, and analysis; beneficial re-use of produced water including recycling or conversion to solid salt suitable for winter road maintenance or dust control; recycling of flowback water; new disposal methods; minimization of water volumes; wellbore integrity monitoring systems; alternative sourcing and processing to freshwater. Water-less fracking technologies (e.g. use of cold compressed natural gas or LNG in place of water). Water accountancy tools

ITEMS TO REDUCE TRUCK TRAFFIC (including but not limited to): technologies for more efficient supply use; technologies to reduce waste generation; beneficial use of drill cuttings and produced/flowback water.

SPACE SAVING ITEMS TO REDUCE FOOTPRINT (including but not limited to): more space efficient separators, treaters, drilling systems to reduce land footprint.

METHANE PYROLYSIS (including but not limited to): Low cost, field installable natural gas compressor retrofit kit to reduce emissions, improve operating efficiency and reduce operating costs.

POWER MANAGEMENT (including but not limited to) More energy efficient and responsive natural gas engines; efficient and clean generators; more efficient dual fuel (diesel and natural gas) engines that coordinate operations to provide power and response. Technologies that can economically convert waste heat sources (reciprocating engine exhaust heat and jacket water heat, geothermal, etc) into electricity at smaller scales (e.g. 20kW to 250kW). High efficiency engine technologies could include smaller scale natural gas fueled micro-turbine engines (<500kW). Alternative power sources to supplant combustion in remote locations (where grid connection is not economic or challenging). Alternative energy such as solar, wind, etc.

PLANT OR BIOLOGICAL SOLUTIONS (including but not limited to) Salt tolerant vegetation or trees

targeted for beneficial use of produced water; vegetation or trees targeted for growth in drill cutting based soils; site or spill remediation solutions. Biochar for produced/flowback water cleanup, soil remediation. Synthetic biology and genetically modified plants that capture CO₂

ADVANCED MATERIALS AND CHEMICALS (*including but not limited to*) Novel materials or chemicals comprised of no or fewer hazardous chemicals; advanced materials less likely to rust or corrode which will improve containment; improved treating chemicals and detection methods; chemicals to extract hazardous items from produced fluids; new products made from captured CO₂, new ways to capture/separate CO₂ and NGLs, or geothermal technologies.

SOLID POLLUTION REDUCTION (*including but not limited to*): Trash and litter are a community problem which impacts the industry and the communities oil and gas companies work in. While not the primary source, industry generates solid waste (which has the potential to become pollution) from oil and gas operations. Novel approaches for eliminating the need for a high use material, material substitution or methods to contain and recycle high frequency items.

HYDROGEN AND HYDROGEN INFRASTRUCTURE (*including but not limited to*) hydrogen production, hydrogen transport technologies and novel synergistic uses for existing infrastructure.

LOW PRESSURE/LOW FLOW MAINTENANCE

Cost-effective, precise and accurate measurement of low volume gas flow at almost atmospheric conditions, i.e. on the suction of tank vapor destruction devices.

OTHER (*including but not limited to*) Limiting water and energy usage in operational divisions; mitigating engine noise pollution; dust control; information technology applications that limit environmental impact. Sound attenuation systems for low frequency noise from drilling/completion sites in proximity to residents. Multi-phase gas compression technologies.