



Challenge: LCBA – NGIF on Waste Heat Recovery and Utilization Solutions

Challenge Statement:

NGIF IG is seeking breakthrough technologies that can improve the environmental performance of the natural gas sector. Technologies or solutions that can help natural gas asset owners and operators increase the utilization of waste heat sources are of interest.

Context:

NGIF IG is looking for waste heat recovery and utilization technologies. The following categories are of interest:

- Advanced technologies that can recover waste heat from low grade heat sources (< 150°C) for use in power generation or other applications. Low-grade heat is the most abundant source amongst natural gas asset owners and operators.
- Technologies of interest include, but are not limited to, solutions that can extract heat from natural sources or exhaust gasses (sources include, but are not limited to, compressor stations, power plants, combustion engines from on-site operations in natural gas production, gas-fired power plants and waste heat from residential boilers and furnaces) or other sources to produce energy for utilization in natural gas operations. Waste heat recovery units that offer more than a step efficiency improvement from incumbent technologies, including Organic Rankine Cycle (ORC) systems, are of interest at all temperature ranges.
- Reduction or replacement of hostile working fluids and components that do not require regular mechanical maintenance and turbine replacement leading to significant performance improvements.
- New and emerging pathways to utilize waste heat to produce energy for use.

Response Criteria:

In your response, please provide the following information or describe how your solution can meet the requirements of the challenge.

- Your solution falls within TRL 6-8. If the technology is at TRL 5, and TRL 6 will be reached imminently then we would be able to consider it.
- Technology/innovation information (describe your solution and how it works (i.e., scientific principles), intellectual property limitations – if any, competing technologies (such as ORC or others) and any advantages your solution offers, value proposition for your end-users)
- Potential economic and/or environmental considerations of your solution such as the \$/KWh cost, CAPEX, OPEX and the GHG savings compared to grid or business as usual case.
- Financial, and operational readiness of your company, and technical capability of your team.



The Opportunity:

- The LCBA Canada offers the opportunity to **fast-track** your application and secure frontline access to NGIF IG's Natural Gas Industry members and through them, access to millions of natural gas users across Canada ([Global Cleantech Challenge](#)). This competition is offering up to \$1M CAD to support high potential demonstration projects at NGIF energy company industrial operations.
- Opportunity to secure frontline access to NGIF IG's Natural Gas industry members and through them, access to millions of natural gas users across Canada
- Showcase and demonstrate your product or technology to NGIF IG's Natural Gas industry members.

About NGIF:



NGIF Capital Corporation:

NGIF Capital is a Canadian venture capital organization which offers grants and equity financing for startups that provide solutions to the environment and other challenges facing the natural gas sector. NGIF Capital is unique in how it brings Canada's energy industry leadership to each and every investment. It takes new companies and their ideas from concept stage to commercialization. NGIF Capital is linked to the entire gas value chain - from production to end-use, and offers the means to test, develop, and accelerate the commercial implementation of innovative gas technologies wherever they fit within the gas industry. This model benefits consumers, investors, and the Canadian society as a whole. NGIF Capital operates NGIF Industry Grants (the original Natural Gas Innovation Fund), the NGIF Emissions Testing Centre (NGIF ETC), and the NGIF Cleantech Ventures (NGIF CV).

NGIF Industry Grants (NGIF IG):

NGIF Industry Grants is a corporate division of NGIF Capital Corp. ("NGIF Capital") and was established to accelerate cleantech innovation in the gaseous energy value chain. The mandate of NGIF IG is to fill and accelerate technology development gaps in the sector and to invest in enabling solutions for current and emerging challenges facing the industry. Our focus is to advance clean technologies that improve environmental outcomes, increase economic competitiveness, and eliminate or reduce sustainability barriers. NGIF IG is wholly funded by the Canadian natural gas industry. Our natural gas production and transmission participants include Birchcliff Energy Ltd., Canadian Natural Resources Ltd., Cutbank Dawson Gas Resources Ltd. (a wholly owned subsidiary of Mitsubishi Corporation), Perpetual Energy Inc., PETRONAS Energy Canada Ltd., Shell Canada Energy (by its managing partner, Shell Canada Ltd.), Tidewater



Midstream and Infrastructure Ltd., and Tourmaline Oil Corp. The natural gas distribution participants include ATCO Gas (a division of ATCO Gas and Pipelines Ltd.), Apex Utilities, Enbridge Gas Inc., FortisBC Energy Inc., Pacific Northern Gas Ltd., and SaskEnergy Inc.

For more information on NGIF Capital and NGIF Industry Grants, please visit ngif.ca or contact us at info@ngif.ca.

***Only non-confidential information should be included in your response ***