Synopsis:

Natural Gas Heat Pumps for residential application is a key innovation theme for Industry Grants **("NGIF IG")**, a division of NGIF Capital Corporation. NGIF IG is seeking purposeful collaborations with EU Small and Medium Enterprise (SMEs) and Mid-Cap technology developers to bring and showcase their technology to the Canadian market.

Challenge Statement:

NGIF IG is seeking innovative commercially viable fuel-efficient gas heat pump solutions that can maintain ultra-high/ high (above 100%) energy efficiencies to replace furnace or boiler, air conditioner and hot water heater with a single gas heat pump for space heating, water heating and space cooling in residential settings. The heat pump must be suitable for outside temperatures as low as – 40 deg C and as high as + 40 deg C and will enable reduction in greenhouse gas emissions and improvements in the overall environmental footprint.

Context:

NGIF IG is seeking technology developers and manufactures of thermally driven heat pumps that can provide affordable and energy-efficient HVAC solution for residential applications. Majority of houses in Canada use warm-air furnaces to heat spaces, storage tank style water heaters for domestic hot water use, and air conditioners. Natural gas heat pumps represent a new step change in efficiency – from over 90% today for furnaces to 130-140% for heat pumps. As such, gas heat pumps for residential solutions could have a significant market acceptance across Canada where there are more than 6 million commercial and residential customers of natural gas.

Response Criteria:

NGIF IG is seeking efficient gas-powered heating and cooling solutions on natural gas heat pumps for the residential market (less than 200,000 BTU/hr). Preference is for fuel agnostic devices which can run both on natural gas and hydrogen blended fuel.

Examples on gas heat pumps include, but are not limited to:

- Gas heat pumps utilizing new Vapor Compression, or Absorption Adsorption, or Thermal Compression cycles
- Improvements in heat exchanger technology
- High-efficiency vapor separation

The Opportunity:

- Opportunity to secure access to capital
- 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 in Canada.
- Explore new markets and customers

About NGIF:

NGIF Capital Corporation:

NGIF Capital is a Canadian venture capital ("**VC**") firm offering grants and equity financing for startups that deliver solutions to the environmental and other challenges facing the natural gas sector. NGIF Capital is unique in how it brings Canada's energy industry leadership to every investment. NGIF Capital operates NGIF IG (the original Natural Gas Innovation Fund), the NGIF Emissions Testing Centre ("**NGIF ETC**"), and NGIF Cleantech Ventures ("**NGIF CV**").

NGIF Industry Grants (IG):

NGIF IG was created to advance cleantech innovations in the natural gas value chain. NGIF IG has the mandate to fill technology development gaps in the sector and 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/ reduce prolonged sustainability barriers.

NGIF IG is funded by the Canadian natural gas industry. Our Natural Gas Production investors include Birchcliff Energy Ltd., Canadian Natural Resources Limited, Cutbank Dawson Resources Ltd. (a 100% subsidiary of Mitsubishi Corporation), CSV Midstream Solutions, Perpetual Energy Inc., PETRONAS Energy Canada Ltd., Shell Canada Limited, and Tourmaline Oil Corp. Our Natural Gas Distribution investors include ATCO, Enbridge Gas Inc., FortisBC Inc., Pacific Northern Gas Ltd., and SaskEnergy. 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 ***