PyroGenesis Provides Update on the PUREVAP™ QRR Project with HPQ Silicon Inc.

February2, 2023

Process Testing Moving Forward as Expected; Engineering Study to Follow

MONTREAL, Feb. 02, 2023 (GLOBE NEWSWIRE) -- PyroGenesis Canada Inc. (http://pyrogenesis.com) (TSX: PYR) (NASDAQ: PYR) (FRA: 8PY), a high-tech company (hereinafter referred to as the "Company" or "PyroGenesis"), that designs, develops, manufactures and commercializes advanced plasma processes and sustainable solutions to reduce greenhouse gases (GHG) and address environmental pollutants, is pleased to provide, further to HPQ Silicon Inc's ("HPQ" or the "Client") press release dated January 19th 2023, and the Company's news release on November 8, 2022 , an update on its Gen3 PUREVAP™ Quartz Reduction Reactor (QRR) pilot plant (the " Gen3 PUREVAP ™ Pilot Plant" or the "Pilot Plant") project following recent inquiries from investors.

Figure 1

Picture of PyroGenesis' Gen3 PUREVAP™ Quartz Reduction Reactor (QRR) pilot plant

The process testing referred to in the HPQ press release dated January 19th, 2023, is moving forward as expected and represents, in management's opinion, a key development in the overall project. These tests are geared to not only confirm that the technology works as expected, but also to give input into the subsequent engineering study which will be geared to determining amongst other things, the actual number of systems required for commercialization and the profitability of each.

"The question that keeps being asked of us is what does successful testing ultimately mean to PyroGenesis?", said Mr. P. Peter Pascali, CEO and Chair of PyroGenesis, "The answer is that besides the strategic investment PyroGenesis has in HPQ, the Company also benefits from a royalty payment representing 10% of the Client's sales. In addition to this, the subsequent commercial systems required by HPQ for commercialization would be manufactured by PyroGenesis. Although these current tests and the subsequent engineering study will determine the profitability of the project, they will also determine the exact number of reactors required. To give more clarity, at this stage both HPQ and PyroGenesis agree, given what we know today, that at least two (2) initial reactors, each reactor capable of producing 2,500 MT of high purity silicon per year, at a build cost to HPQ of at least $20 million each, would be required. This assumes successful testing which, although we are confident in, is not guaranteed as there are many uncertainties yet to be addressed before we can say with confidence that we have a successful process to commercialize."

Figure 1- Picture of PyroGenesis' Gen3 PUREVAP™ Quartz Reduction Reactor (QRR) pilot plant

The PUREVAP™ process is an innovative patented process that will enable the one-step conversion of quartz (SiO_2) into high-purity silicon (Si) at reduced costs, energy input and carbon footprint that will propagate its considerable renewable energy potential. As part of the terms of the contract with HPQ, PyroGenesis benefits from a royalty payment representing 10% of the Client's sales, with set minimums.

About HPQ Silicon

HPQ Silicon Inc. (TSX-V: HPQ) is a Quebec-based innovative silicon solutions company that offers innovative silica (SiO_2), silicon (Si) based solutions and is developing a unique portfolio of high value-added silicon (Si) products sought after by battery and electric vehicle manufacturers.

Silicon (Si), also known as silicon metal, is one of today's key strategic materials needed for the decarbonization of the economy and the Renewable Energy Revolution ("RER"). However, silicon does not exist in its pure state and must be extracted from quartz (SiO_2) in what has historically been a capital and energy-intensive process.

With PyroGenesis Canada Inc. (TSX: PYR) (NASDAQ: PYR), HPQ is developing:

1. the ***PUREVAP™ "Quartz Reduction Reactors" (QRR)*** an innovative process (patent pending), which will permit the one-step transformation of quartz (SiO_2) into high purity silicon (Si) at reduced costs, energy input, and carbon footprint that will propagate its considerable renewable energy potential.

2. Through its 100% owned subsidiary, HPQ NANO Silicon Powders Inc., the ***PUREVAP™ Nano Silicon Reactor (NSiR)*** is a new proprietary process that can use material produced by the QRR as feedstock, to make a wide range of nano/micro spherical powders of different sizes and nanowires.
3. Through its second 100% owned subsidiary, HPQ Silica POLVERE Inc., HPQ is developing a new plasma-based process that will allows a direct Quartz to Fumed silica transformation, removing the usage of hazardous chemical in the making of Fumed silica and eliminating the Hydrogen Chloride Gas (HCI) associated with its manufacturing.

About PyroGenesis Canada Inc.

PyroGenesis Canada Inc., a high-tech company, is a leader in the design, development, manufacture and commercialization of advanced plasma processes and sustainable solutions which reduce greenhouse gases (GHG) and are economically attractive alternatives to conventional “dirty” processes. PyroGenesis has created proprietary, patented and advanced plasma technologies that are being vetted and adopted by multiple multibillion dollar industry leaders in four massive markets: iron ore pelletization, aluminum, waste management, and additive manufacturing. With a team of experienced engineers, scientists and technicians working out of its Montreal office, and its 3,800 m^2 and 2,940 m^2 manufacturing facilities, PyroGenesis maintains its competitive advantage by remaining at the forefront of technology development and commercialization. The operations are ISO 9001:2015 and AS9100D certified, having been ISO certified since 1997. For more information, please visit: www.pyrogenesis.com.

This press release contains certain forward-looking statements, including, without limitation, statements containing the words "may", "plan", "will", "estimate", "continue", "anticipate", "intend", "expect", "in the process" and other similar expressions which constitute "forward- looking information" within the meaning of applicable securities laws. Forward-looking statements reflect the Company's current expectation and assumptions and are subject to a number of risks and uncertainties that could cause actual results to differ materially from those anticipated. These forward-looking statements involve risks and uncertainties including, but not limited to, our expectations regarding the acceptance of our products by the market, our strategy to develop new products and enhance the capabilities of existing products, our strategy with respect to research and development, the impact of competitive products and pricing, new product development, and uncertainties related to the regulatory approval process. Such statements reflect the current views of the Company with respect to future events and are subject to certain risks and uncertainties and other risks detailed from time-to-time in the Company's ongoing filings with the securities regulatory authorities, which filings can be found at www.sedar.com, or at www.sec.gov. Actual results, events, and performance may differ materially. Readers are cautioned not to place undue reliance on these forward-looking statements. The Company undertakes no obligation to publicly update or revise any forward- looking statements either as a result of new information, future events or otherwise, except as required by applicable securities laws. Neither the Toronto Stock Exchange, its Regulation Services Provider (as that term is defined in the policies of the Toronto Stock Exchange) nor the NASDAQ Stock Market, LLC accepts responsibility for the adequacy or accuracy of this press release.

SOURCE PyroGenesis Canada Inc.

For further information please contact:
Rodayna Kafal, Vice President, IR/Comms. and Strategic BD
Phone: (514) 937-0002, E-mail: ir@pyrogenesis.com

RELATED LINK: http://www.pyrogenesis.com/

A photo accompanying this announcement is available at https://www.globenewswire.com/NewsRoom/AttachmentNg/31d3e932-406b-440b-9b81-d010aa936be2