PyroGenesis Announces Project to Introduce Plasma Torches into the Upstream Anode Baking Process

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MONTREAL, June 02, 2022 (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 which are geared to reduce greenhouse gases (GHG), is pleased to announce that, further to its press release dated April 20th, which provided an update on its Aluminum Business offerings, the Company has undertaken a joint initiative (the "Agreement") with a premier applied engineering and process optimization firm (the "Client") in the global aluminum industry. This Agreement is focused on utilizing PyroGenesis' zero-emission plasma torches in carbon anode baking – a vital upstream step in the aluminum production process. The name of the Client remains anonymous for confidentiality reasons.

PyroGenesis' 150KW plasma torch will be placed inside a pilot system at the Client's renowned research center. This pilot system has been used to conduct optimization tests for many of the world's top aluminum producers.

The Client is one of the world's leading consulting engineering firms specifically focused on the optimization and improvement of furnace and furnace combustion processes at aluminum plants. In particular, the Client is focused on improving processes, lowering costs, and improving the quality of carbon anodes – the conductive material used in the electrolytic production of primary aluminum.

In aluminum production, a smelter needs approximately 425 kg of carbon anode – which is consumed during the smelting process – to produce one ton of primary aluminum. The demand for anodes is so significant that several stand-alone manufacturers of high-grade anodes, as well as anode baking systems, are on-site at major aluminum producers and in constant operation – baking new anodes, of up to 6 feet in length and weighing 1.2 tons each[1,2]. As a result, improving and optimizing this anode baking process is a key objective in the industry, and the Client considers PyroGenesis' plasma torches as part of that solution set.

"Once again, we have yet another Agreement underscoring the applicability, and timing, of PyroGenesis 'offerings within the aluminum industry," said Mr. P. Peter Pascali, CEO and Chair of PyroGenesis. "Global aluminum producers face increasing metal demand, rising energy costs, higher market prices for high-quality aluminum, and new restrictions to meet carbon emissions targets. This agreement is a direct result of our increased sales efforts and R&D, targeting innovative new uses of our ultra-high heat expertise and plasma-based solutions. As stated in our aluminum business line update release of April 20th, the upstream opportunities are numerous and continue to provide additional opportunities for PyroGenesis' plasma processes. In this particular case, the Client has informed us that a typical anode baking furnace of 3 fires requires 144 gas burners of 200kw each, with the largest anode baking plants operating up to 7 furnaces with 4 fires each. This clearly illustrates the magnitude of this opportunity."

Under the scope of this agreement, the performance of PyroGenesis' plasma torches will be analyzed, and the temperature distributions and flame characteristics will be determined. The results will provide third-party validation of the potential in replacing conventional oil and gas burners in carbon anode baking facilities with PyroGenesis' plasma torches.

"The potential to replace, at a single plant, more than 1000 gas burners with our clean plasma torches, is significant both in terms of (i) productivity and (ii) emission reduction," continued Mr. Pascali. "As such, we look forward to undertaking this project together with our Client – a neutral, independent highly regarded engineering and technology firm, who has been recommending improvements to the aluminum industry for almost half a century."

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 plasm a 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 m2 and 2,940 m2 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 Corporation'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 Corporation with respect to future events and are subject to certain risks and uncertainties and other risks detailed from time-to-time in the Corporation'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 Corporation 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.

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[1] Trimet Aluminium SE has commissioned a new anode baking furnace at its aluminium smelter in Hamburg, Germany. May 13
https://alu-web.de/en/trimet-puts-new-anode-baking-furnace-into-operation/

[2] Why Are Anode Production Costs Rising? December 4, 2018, BY GORAN DJUKANOVIC
https://aluminiuminsider.com/why-are-anode-production-costs-rising/#:~:text=To%20produce%20one%20tonne%20of,in%20less%20than%20two%20years.