PyroGenesis Unveils Strategy to Become Global On-Site Dross Processor Delivering Zero-Landfill/Reduced Carbon Solution; Reduces GHG Emissions; Provides General DROSRITE™ Update

MONTREAL, QUEBEC (GlobeNewswire – September 22nd, 2020) - PyroGenesis Canada Inc. (http://pyrogenesis.com) (TSX-V: PYR) (OTCQB: PYRNF) (FRA: 8PY), a high-tech company, (the "Company", the "Corporation" or "PyroGenesis") that designs, develops, manufactures and commercializes plasma atomized metal powder, plasma waste-to-energy systems and plasma torch systems, unveils today, at its Annual and Special Meeting of Shareholders, a strategy to become a global on-site dross processor delivering zero-landfill/reduced carbon, and further underscored how DROSRITE™ reduces greenhouse gas (GHG) emissions.

The Company is pleased to provide additional information with respect to this strategy as well as a general DROSRITE™ update in the following Q&A format.

Q. Before we jump into the essence of your announcement, could you once again, for those that are new to the DROSRITE™ story, please describe to us what DROSRITE™ is, and some of its many advantages?

A. Most certainly.

It's simple. Let's take an aluminum smelter as an example. As the hot aluminum is formed, it comes in contact with oxygen, and a dross is formed on the surface. This dross acts like a sponge and it effectively absorbs valuable metal. The smelter skims the dross and puts it aside to cool down. Although dross is considered a waste generated by the metallurgical industry, it contains valuable metal that the smelter would like to reclaim. Typically, the dross is sent off site to be processed by a third party who usually uses a salt-based recovery system. Salt, if it comes in contact with aluminum, could contaminate the batch and, as such, salt is usually prohibited from being on site and, ergo, the need to ship dross off-site to be processed. These third parties, who use salt, generate salt cakes, which are a hazardous by-product of their dross processing technique.

PyroGenesis' DROSRITE™ system is a salt-free, cost-effective, sustainable process for maximizing metal recovery from dross. PyroGenesis' patented process avoids costly loss of metal while reducing a smelter's carbon footprint and energy consumption, thereby providing an impressive return on investment.

With metal manufacturers, such as aluminum, being subjected to increased pressure from regulatory authorities to eliminate landfilling of hazardous salt cakes from traditional recovery operations, combined with tight operating margins, PyroGenesis' DROSRITE™ system is able to (i) increase metal recovery, without producing any hazardous by-products, while at the same time (ii) reducing operating costs.

Figure 1 - PyroGenesis' Drosrite™ System

In short, PyroGenesis' DROSRITE™ system is a proven method of recovering valuable metal from dross that (i) is salt-free, so no hazardous by-products, (ii) can process the dross cheaper than conventional methods, and (iii) has demonstrated higher metal recovery rates. Non-hazardous, cheaper and with higher recovery rates, who could ask for more? The increased recovery rate alone could save an owner/operator over $1M/year using PyroGenesis' 5000 tons/year DROSRITE™ system.

Our primary target is currently aluminum dross as this was the market, we first introduced the DROSRITE™ process to and, as you can imagine, it is much easier to leverage off of that success than to start marketing to a new sector.

Click on the link below to watch the DROSRITE™ video*:*
https://www.pyrogenesis.com/products-services/maximizing-aluminum-recovery/

Since announcing several years ago our intention to enter this marketplace, we have (i) sold the first system for $600K, (ii) sold the second system to the same client for $1.02MM, (iii) sold 2 systems to a subsequent client, iv) the technology was used for a 7 system order for over $20MM, (v) developed a tolling strategy, and (vi) partnered with a Japanese multi-billion dollar trading house to accelerate that very same strategy.

Now that we are inside the fence, we now have the "Golden Ticket" to additional opportunities.

Q. What do you mean by inside the fence and more importantly Golden Ticket opportunities?

A. By inside the fence, we are referring to the fact that DROSRITE™ system operates on site, i.e. inside the smelter's facility. By Golden Ticket, we mean the opportunity it is created by operating inside the fence. By operating inside the fence, we are able to witness firsthand other challenges facing the industry and to speak to operators and plant managers with respect to these issues, which provide us with an ideal situation in which we can pitch solutions. Having this Golden Ticket essentially is how we came to articulate, and execute, the strategy unveiled today. We are effectively solving a (horizontal) problem we identified inside the fence.

Q. So, the strategy unveiled today was as a result of being inside the fence?

A. Definitely.

We are proud to say that DROSRITE™ has compelling advantages in and of its own right, as is clearly demonstrated by our recent successes. A natural byproduct of treating dross is the creation of residues which have been easily handled in the past. Of late, there has been increased pressure to find alternate methods in handling residuals other than traditional landfilling. It was PyroGenesis' strategic decision to address this problem through (i) its expertise, (ii) exclusive joint ventures, and/or (iii) acquisitions.

If successful, the combination of treating dross and residues will create what we believe to be one of the first, if not the first, global onsite dross processor delivering a zero-landfill/reduced carbon solution. We know of no other company offering this. We would be offering, in our opinion, the ultimate green solution to this problem. It would effectively be a formattable offering, which would, in our opinion, be difficult to compete against, thereby giving us a distinctive advantage over other options.

Q. Can you explain in more detail the difference between dross and residues?

A. Most certainly.

Dross is 60% metal and 40% residue. DROSRITE™ is recovering the 60% metal and because it does not contaminate the 40% residues with salt, it presents a unique additional value-added opportunity. These residues have the capacity to be converted into chemical and metallurgical products. This would be an easy expansion of our service offering to the aluminum industry such that PyroGenesis would build, install, and operate turn-key plants that are essentially a cradle to grave and zero landfill solution. This should significantly increase revenues and operating margins at a DROSRITE™ plant.

Q. Could you give us an example of what you mean by handling residues other than traditional landfilling?

A. We believe we have clear visibility on creating valuable materials from these residuals which are often times landfilled. One example would be converting a particular residue into ammonium sulphate or aluminum sulphate, both high value chemical products. We effectively would be converting these landfilled products into useful commodities with obvious benefits to the environment. We have already demonstrated to the Board that this can be done economically.

Q. If I understand correctly, DROSRITE™ on its own reduces greenhouse gas emissions and in addressing residues would be an additional environmental benefit?

A. Exactly.

DROSRITE™ has always reduced greenhouse gas emissions.

Let me explain.

There are two main sources of greenhouse gas reduction:

- Direct: mainly due to savings in (i) transportation and (ii) by not burning fossil fuels in a Rotary Salt Furnace (RSF)
- Indirect: mainly due to the increased recovery of aluminum (less emissions than producing aluminum from primary resources)

The following table[1] summarizes the potential emissions reduction assuming all the dross produced in the world[2] was treated with DROSRITE™.

Sector	Dross volume (TPY)	Direct reductions (t_eqCO_2 per year)	Indirect reduction (t_eqCO_2 per year)	Total (t_eqCO_2 per year)	Car equivalent (US EPA)
Primary	600,000	199,800	864,000	1,063,800	231,261
Secondary	1,450,000	424,850	1,116,500	1,541,350	335,076
Downstream	950,000	316,350	1,102,000	1,418,350	308,337
TOTAL	3,000,000	941,000	3,082,500	4,023,500	874,674

Therefore, more than 4 million tonnes of greenhouse gas can be reduced each year (which is the

[1] Based on Internal Calculations
[2] Aluminum Dross Processing; A Global Review, AlCircle.com

equivalent of removing close to 875,000 cars off the road each year) if the world's aluminum dross was treated with DROSRITE™. According to the USEPA, an average passenger car in the US emits 4.6 tonnes per year of CO_2[3]. This equates to removing an average of 1,458 cars/year off the road, year in and year out, for each of PyroGenesis' 5 tonnes systems, or close to 3,000 cars/year for each of the Company's 10 tonnes systems.

Q. How does this affect your relationship with the Japanese trading house, and can you update the status with them?

A. That is a very interesting question because the effective implementation of our strategy will make tolling a more compelling option to both us, as a provider and to potential clients, as we become a one-stop-shop/total solution for these problems. Our relationship with the Japanese trading house envisioned developing tolling opportunities by first starting in the Americas and then leveraging off that success worldwide. We are currently redrafting our agreement to address both (i) the impact of the strategy articulated today and (ii) a genuine interest by the Japanese trading house to develop a closer relationship with respect to our DROSRITE™ offerings.

Q. When might you expect further developments with respect to the strategy announced today?

A. As I said, we have clear visibility on putting in place this strategy and expect to announce something before year-end. We are confident enough in the eventual success that we have already proposed this new offering existing clients.

We are also in the process of incorporating this new offering in existing tolling opportunities and we expect it to be a significant differentiating factor in those situations that involved competitive bidding. We are the front runners in a number of tolling opportunities as well as a number of potential outright sales. Without a doubt, COVID-19 has slowed down the business development aspect of completing new contracts as many as our potential clients are managing the ever-changing COVID-19 environment with limited staff as certain facilities slowed down production and/or expansion due to the crisis. Of note, we have seen a turnaround as worldwide aluminum production increase to pre-COVID levels.

About PyroGenesis Canada Inc.

PyroGenesis Canada Inc., a high-tech company, is the world leader in the design, development,

[3] https://www.epa.gov/greenvehicles/greenhouse-gas-emissions-typical-passenger-vehicle#:~:text=typical%20passenger%20vehicle%3F-,A%20typical%20passenger%20vehicle%20emits%20about%204.6%20metric%20tons%20of,8%2C887%20grams%20of%20CO2.

manufacture and commercialization of advanced plasma processes and products. We provide engineering and manufacturing expertise, as well as turnkey process equipment packages to the defense, metallurgical, mining, advanced materials (including 3D printing), oil & gas, and environmental industries. With a team of experienced engineers, scientists and technicians working out of our Montreal office and our 3,800 m2 manufacturing facility, PyroGenesis maintains its competitive advantage by remaining at the forefront of technology development and commercialization. Our core competencies allow PyroGenesis to lead the way in providing innovative plasma torches, plasma waste processes, high-temperature metallurgical processes, and engineering services to the global marketplace. Our operations are ISO 9001:2015 and AS9100D certified, and have been since 1997. PyroGenesis is a publicly traded Canadian Corporation on the TSX Venture Exchange (Ticker Symbol: PYR) and on the OTCQB Marketplace. For more information, please visit www.pyrogenesis.com.

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