



State-of-the-art industrial technology solving some of the world's most pressing environmental, engineering, and energy problems.

Investor Presentation

September 1, 2022

NASDAQ:PYR | TSX: PYR | FRA: 8PY



Forward-Looking Statement

About this Presentation

This presentation is dated February 4th, 2022 and is strictly intended to provide general information about PyroGenesis Canada Inc. (“**PyroGenesis**”, the “Company” or “our”) and its business. This presentation does not constitute an offer to sell or the solicitation of an offer to buy any securities of PyroGenesis.

General

The Company’s fiscal year end is December 31. All amounts in this presentation are expressed in Canadian dollars unless otherwise indicated.

Information appearing in this presentation is a select summary of PyroGenesis’ business, operations and results. The latest annual information form of PyroGenesis and its consolidated financial statements and management’s discussion and analysis thereon for the year ended December 31, 2020 are available on SEDAR at www.sedar.com, and on EDGAR at www.sec.gov, under our profile.

Non-IFRS Financial Measures

EBITDA and Modified EBITDA are not performance measures defined under International Financial Reporting Standards as issued by the International Accounting Standards Board (“IFRS”) and they are not considered an alternative to income or loss from operations, or to comprehensive earnings or loss, in the context of measuring a company’s performance. Management believes that providing certain non-IFRS performance measures, in addition to IFRS measures, provides users of the Company’s financial statements with an enhanced understanding of its results and related trends and increases transparency and clarity. Management believes that EBITDA and Modified EBITDA are important measures of operating performance because it allows management, investors and others to evaluate and compare the Company’s operating results, including its return on capital and operating efficiencies, from period-to-period by removing the impact of the Company’s capital structure (interest expense to service outstanding debt), asset base (depreciation and amortization), tax consequences, and other non-operating items not requiring cash outlays including the adjustment to the fair value of investments and share-based compensation. Accordingly, they should not be considered in isolation. For a full description of these measures and, where applicable, a reconciliation to the most directly comparable measure calculated in accordance with IFRS, please refer to the “Reconciliation of Non-IFRS measures (EBITDA, Adjusted and Modified)” section in our management’s discussion and analysis for the quarter ended December 31, 2020 available on SEDAR at www.sedar.com, and on EDGAR at www.sec.gov, under our profile.

Forward-Looking Information

This presentation contains forward-looking statements and forward-looking information (collectively, “forward-looking statements”) within the meaning of applicable securities legislation. All statements other than statements of historical fact contained in this presentation are forward-looking statements, including, without limitation, the Company’s: statements regarding its products and services; the execution of its growth strategy; relations with suppliers and customers; future financial position; business strategy; potential acquisitions; potential business partnering; litigation; and plans and objectives. In certain cases, forward-looking statements can be identified by the use of words such as “plans”, “expects” or “does not expect”, “is expected”, “budget”, “scheduled”, “estimates”, “forecasts”, “intends”, “anticipates” or “does not anticipate”, or “believes”, or variations of such words and phrases or state that certain actions, events or results “may”, “could”, “would”, “might” or “will be taken”, “occur” or “be achieved” and similar words or the negative thereof. These forward-looking statements are based on PyroGenesis’ management’s current expectations and are subject to a number of risks, uncertainties, and assumptions, including market and economic conditions, business prospects or opportunities, future plans and strategies, projections and anticipated events and trends that affect the Company and its industry. Although management of the Company believes that the expectations reflected in such forward-looking statements are reasonable and are based on reasonable assumptions and estimates, there can be no assurance that these assumptions or estimates are accurate or that any of these expectations will prove accurate.

Although the forward-looking statements contained in this presentation are based upon what management currently believes to be reasonable assumptions, the Company cannot assure investors that actual results, performance or achievements will be consistent with these forward-looking statements and additional risks and uncertainties discussed in the Company’s materials filed with the Canadian and US securities regulatory authorities from time to time, available under the Company’s profile on SEDAR at www.sedar.com and on EDGAR at www.sec.gov, under our profile. There can be no assurance that forward-looking statements will prove to be accurate, as actual results and future events could differ materially from those anticipated in such statements. Accordingly, readers should not place undue reliance on forward-looking statements. Forward-looking statements are provided as of the date of this presentation, and the Company assumes no obligation to update or revise such forward-looking statements to reflect new events or circumstances except as required under applicable securities laws. The forward-looking statements contained in this presentation are expressly qualified by this cautionary statement.



Nasdaq: PYR
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Sector

Industrial Technology

Market Cap

USD\$240MM

CDN\$340MM

As at September 1, 2022



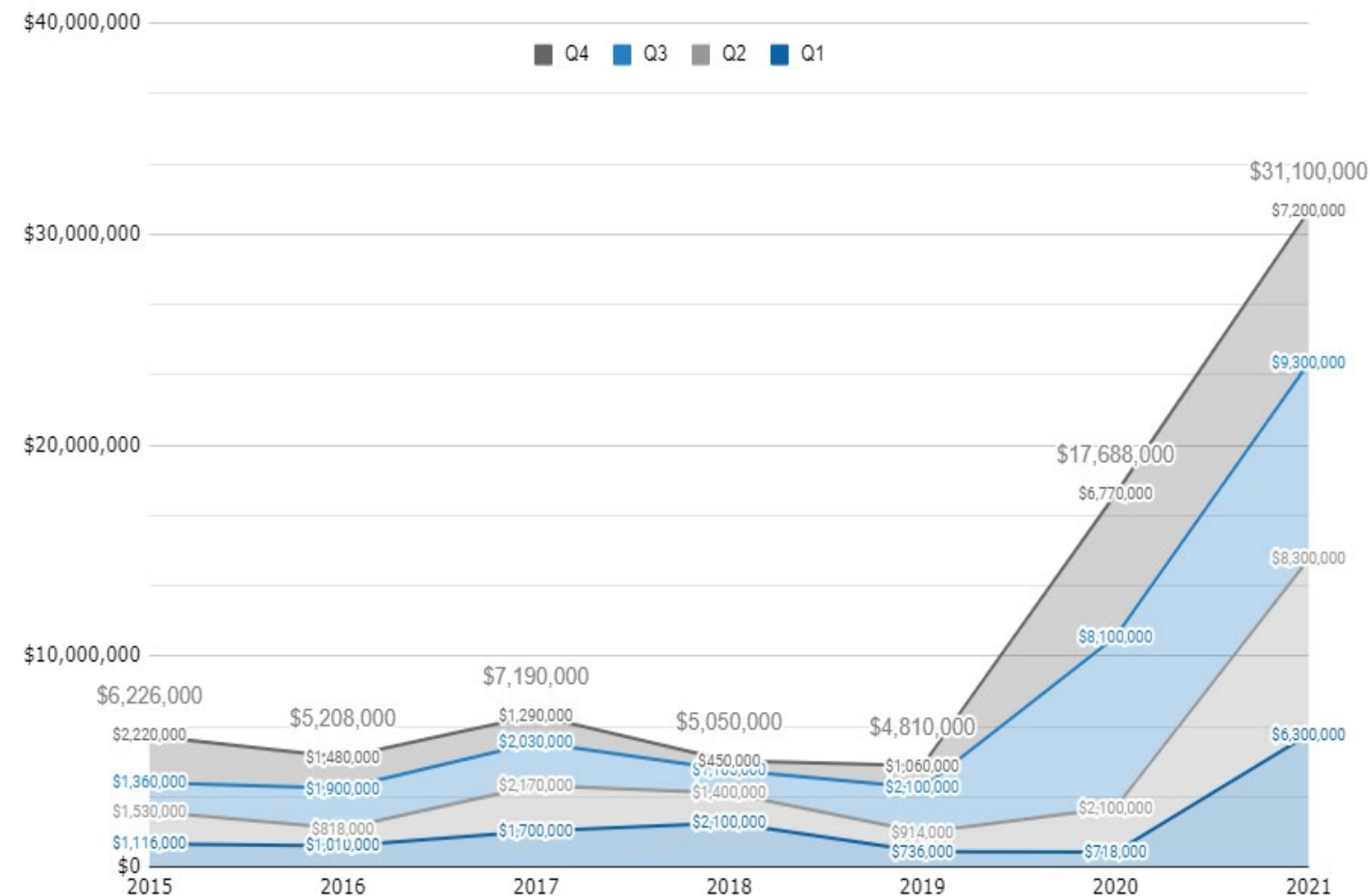
Major Capital Market Entry

- TSX: November 2020
- Nasdaq: March 2021

Post Uplist

- Revenue +75% to \$31.1MM
- Backlog +60% to \$47.7MM
- Doubled manufacturing footprint
- Doubled employee count to ~120

2015-2021 Yearly Revenues by Quarter



Breakout

- U.S. Navy: 4 carrier projects
- Partnerships w/RioTinto, Norsk Hydro, others
- Major global mining and aluminum clients
- Completed 1st acquisition
- Certification process w/global aerospace company



25+ years of R&D with Key Support

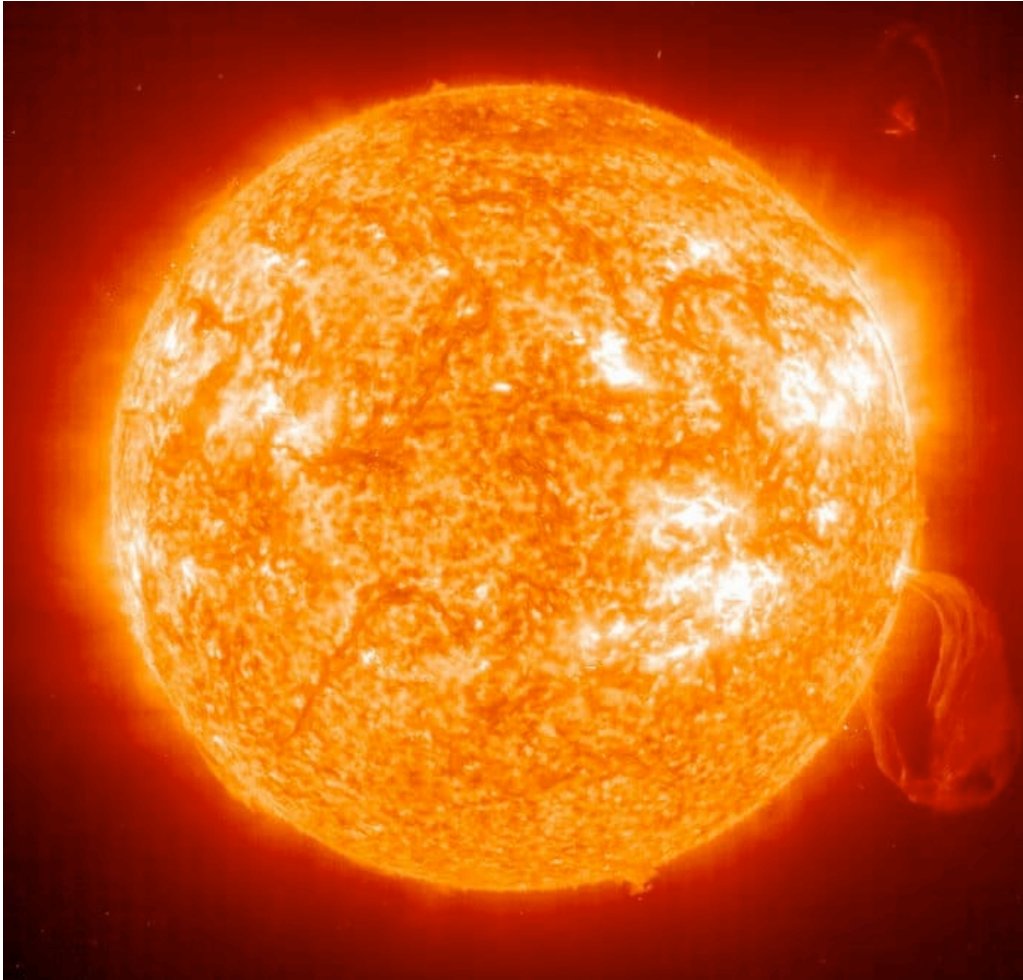
- U.S. Military since 1999
- U.S. and Canadian governments
- Leading aluminum producers
- Aerospace corporations



How it is.



What we do.



Natural Plasma

- The 4th state of matter
- 10,000°F on the surface of the sun
- 864,000 miles wide



PyroGenesis Plasma

- Also up to 10,000° F
- 50Kw to 2MW+
- 16" up to 16 feet wide
- Full integration with computerized process control systems
- In use across numerous industries: defense, aluminum, mining, steel, waste destruction, 3D printing.



The Impact of Plasma

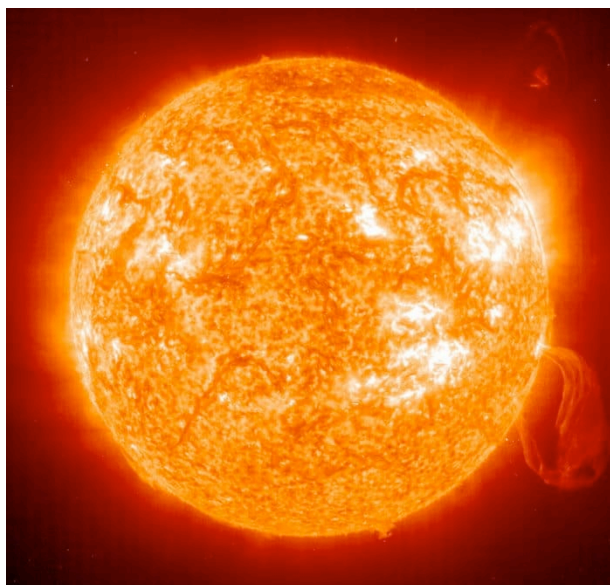
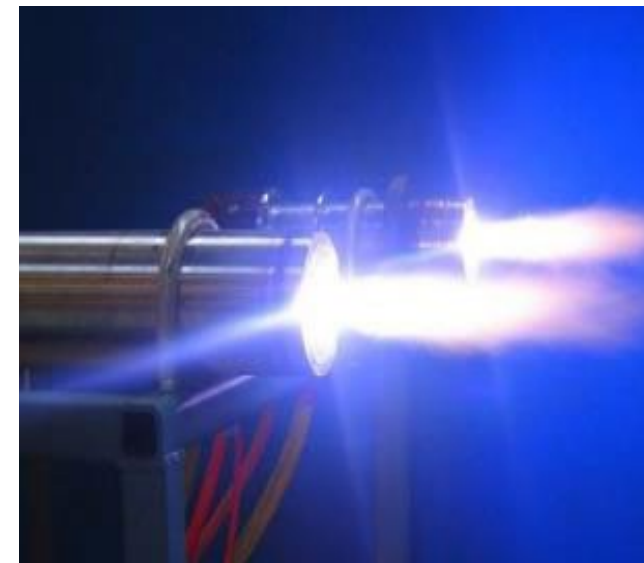
Heat

Purify

Reduce Composites
to Original Form

Alter State

Destroy



Five Primary Business Units

Steelmaking/Iron Ore
Process Improvement



Heat

Renewable Natural Gas



Purify

Aluminum Industry
Process Improvement



Reduce Composites
to Original Form

Metal Powders for
3D Printing



Alter State

Waste & Hazardous
Chemical Destruction



Destroy

Five Primary Business Units

Steelmaking/Iron Ore
Process Improvement

Renewable Natural Gas

Aluminum Industry
Process Improvement

Metal Powders for
3D Printing

Waste & Hazardous
Chemical Destruction

Heat

Purification

Reduce Composites
to Original Form

Alter State

Destroy

**Plasma = clean energy.
No fossil fuels.
Zero carbon emissions.**

Five Primary Business Units

**Steelmaking/Iron Ore
Process Improvement**



Renewable Natural Gas



**Aluminum Industry
Process Improvement**



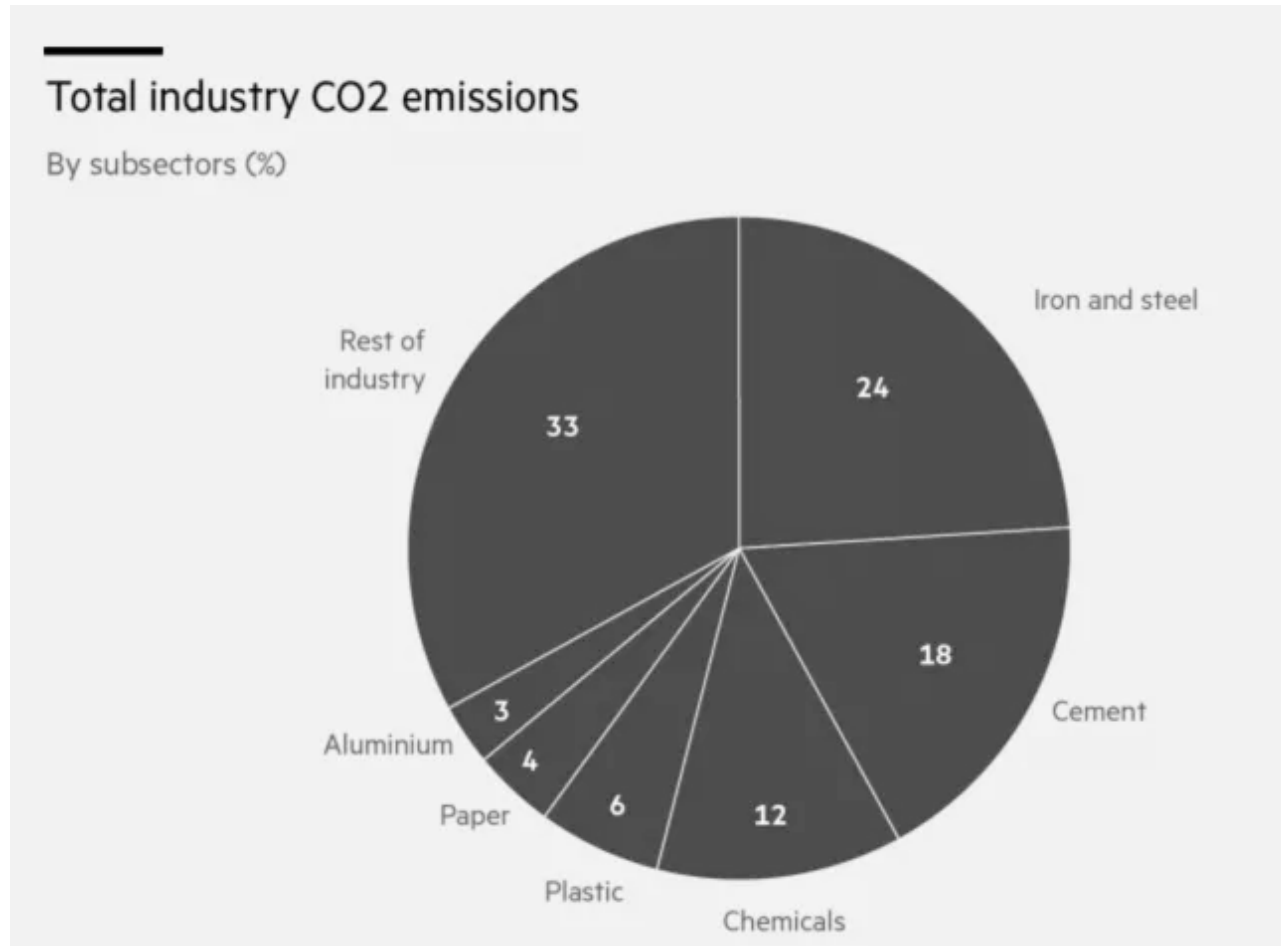
**Metal Powders for
3D Printing**



Waste & Hazardous
Chemical Destruction



1. Steelmaking & Iron Ore Business Unit



Steelmaking and iron account for 24% of all industrial CO2 emissions ¹

1. Steelmaking & Iron Ore Business Unit

Upstream Iron Pelletizers Burn Pollutive Heavy Fuels



1. Steelmaking & Iron Ore Business Unit

Upstream Pelletization Process

CHALLENGE

- Heavily carbon dependent

FOCUS

- Pelletization furnace fuel switch

Current State

Bunker Diesel



1. Steelmaking & Iron Ore Business Unit

Upstream Pelletization Process

CHALLENGE

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Current State

Bunker Diesel



PYROGENESIS SOLUTION

- Patented process replaces diesel with plasma
- clean electric: hydropower, renewables
 - hot swap, no shutdown, computer control

Future State

Plasma and Hydroelectric



1. Steelmaking & Iron Ore Business Unit

Business Unit Growth Timeline

- 2019: chosen for Swedish consortium study of plasma pelletization
- 2020: study data released; mining firms enquire about PyroGenesis
- 2021: 3 global mining firms negotiating w/PyroGenesis for plasma

1. Steelmaking & Iron Ore Business Unit

Business Unit Growth Timeline

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Current Status

Potential: 1,000+ torches x \$7MM NPV (20 year life)

	CLIENT A	CLIENT B	CLIENT C
Biz Case, Simulations, Computer Modelling	✓	✓	TBD
Initial Orders Signed	1 torch: \$1.8MM ✓	4 torches: \$6MM ✓	TBD
Initial Torch Build	Delivered ✓	Underway	TBD
Next Order Visibility	Estimate requested for 36 torches: \$95-\$115MM	130 torches indicated by client	TBD

2. Aluminum Business Unit



Global aluminum demand is expected to grow 80% by 2050¹ ...

... while the industry struggles to meet carbon reduction targets².

1. <https://www.reuters.com/world/china/world-aluminium-industry-must-cut-emissions-by-77-by-2050-ia-2021-03-16>

2. <https://www.iea.org/reports/aluminium>

2. Aluminum Business Unit

Aluminum Dross is Poorly Processed, Landfilled as Waste



2. Aluminum Business Unit

Traditional Multi-Step Dross Recovery Process



Hot dross is cooled



2

Transported off site



3

Re-melted



4

Salt added



5

Processed



6

Transported back to facility.



7

Added back to original stream.



8

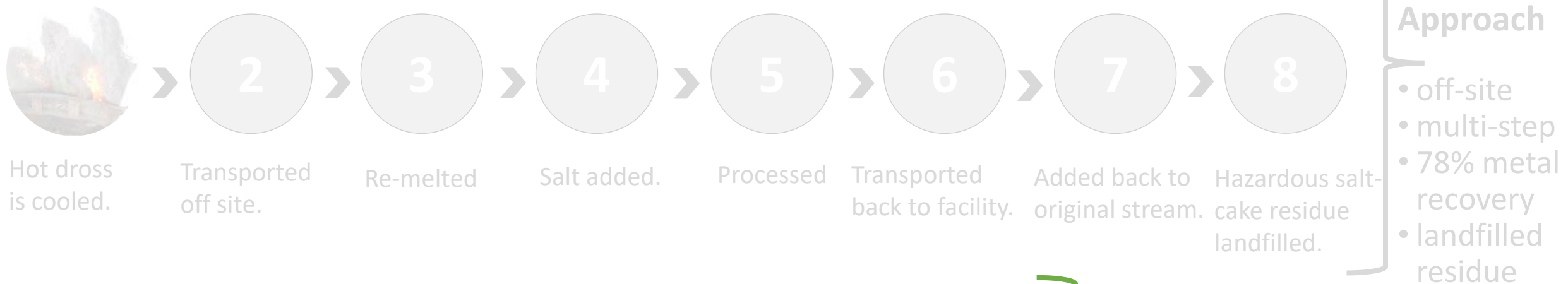
Hazardous salt-cake residue landfilled.

Rotary Salt Furnace Approach

- off-site
- multi-step
- 78% metal recovery
- landfilled residue

2. Aluminum Business Unit

Traditional Multi-Step Dross Recovery Process



PyroGenesis 1-Step Dross & Residue Recovery



Hot dross processed on-site; recovered metal added back without leaving facility.

Residues can be valorized into valuable chemicals for re-sale.

PyroGenesis Drosrite System

- On site
- single step
- 98% metal recovery
- Residues can be valorized for re-sale

\$1 Billion potential market¹

2. Aluminum Business Unit

Continued Increase in Orders and Price

P
R
I
C
E

Q1 2022: 1st of three 10-ton systems, purchase order rec'd for \$4MM

2021: 3 x ten-ton systems LOI'd for ~\$10M-\$15M

2019/2020: 7 systems ordered for ~ +\$20MM

2018: 2 system order

2017: 2nd order for \$1MM

2016: 1st order \$600K

14 Drosrite™ systems: 11 complete, 1 in build, 2 more LOI'd.

Recurring revenue expected to be \$4MM from ongoing maintenance and spare parts for fully operational units.

2. Aluminum Business Unit

Identifying New “Insider” Opportunities

Upstream

Upstream Opportunity 1

Partnership with Aluminerie Alouette to develop spent pot lining waste recovery process.

Upstream Opportunity 2

\$40MM proposal to help reduce upstream GHGs (confidential).

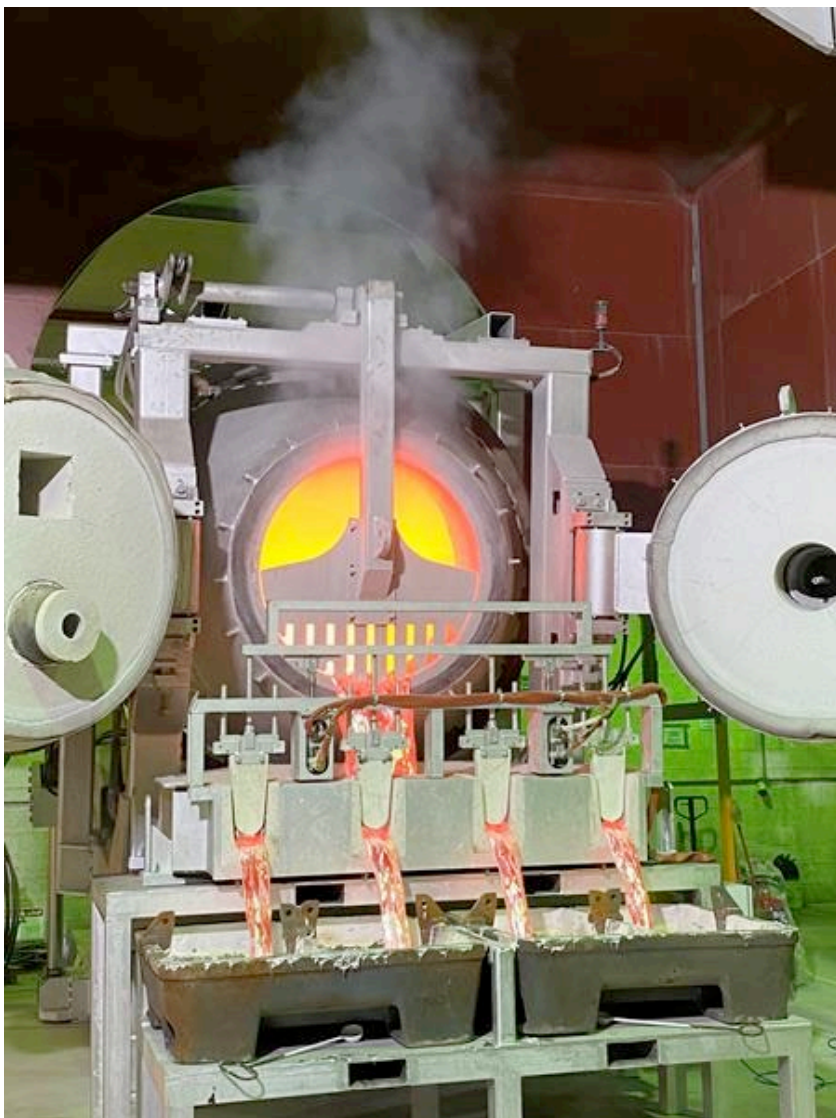
Downstream

Downstream Opportunity 1

Established joint venture to build factories that convert dross residue to speciality chemicals.

Downstream Opportunity 2

Retrofitting cast-house molten holding tanks – prior to ingot creation – with plasma torches.



3. Metal Powders for 3D Printing / Manufacturing



PyroGenesis is the inventor of plasma atomization.

19% sector CAGR¹:

- \$45Bn by 2028
- \$5Bn for metal powder

3. Metal Powders for 3D Printing / Manufacturing

Key Developments 2019-2022

- ✓ Entered final step of 18-month aerospace qualification
- ✓ Announced intention for European production facility
 - ✓ Commenced commercial size batch production
 - ✓ Commenced sample size production
 - ✓ Signed deal w/ global aerospace firm
 - ✓ Signed European technical partnership
 - ✓ Built NextGen plasma atomization system

Sept. 2022



March 2019

Contracts from Multiple Business Lines

Aluminum Industry	\$4MM purchase order for the first of three Drosrite™ Systems
Waste Destruction	\$9.2MM land-based system to destroy PFAS in U.S. municipal water system
Government Contracts	\$1.15MM Phase 2 contract award from Innovative Solutions Canada
Gas Purification	\$267,000 engineering contract with Tata Steel
Biogas	\$5MM (est) to supply Landfill Biogas Purification System
Steelmaking/Iron Ore	\$6 MM plasma torch order with major iron ore pelletizer
Silicon Joint Venture	\$630,000 to Develop Novel Production Process: quartz into fumed silica
Medical Waste Destruction	\$1.2MM plasma contract for medical waste destruction to Asian client
Acquisition	\$10MM in Backlog with Acquisition of Air Science Technologies
Silicon Joint Venture	\$4.6MM to transform Quartz into Fumed Silica
3D Printing / Additive Manufacturing	First two 100Kg batch orders of titanium metal powders.

Organic Growth

- Natural growth
- Insider advantage
 - Uncover new opportunities
 - Cross-sell
- Global GHG reduction momentum

Strategic M&A

1. Targeting private acquisitions
 - AirScience Technologies: news release 08/12/21
2. Joint ventures
 - Leveraging relationships and international engineering reputation



Summary

- ✓ 25+ years of proven technologies vetted and adopted by major global leaders
- ✓ 110+ patents granted or pending in the U.S., Canada, and internationally
- ✓ Commercialized solutions for large business units actively marketed worldwide
- ✓ Long tail of potential additional large-market applications
- ✓ Momentum from greenhouse gas reduction, waste destruction trends
- ✓ Significant upcoming catalysts

Strongly positioned to drive near-term and long-term shareholder value.



The global leader in improving and commercializing ultra-high temperature processes for heavy industry.

25+ years of R&D and commercialization

110+ patents

>110 employees

2 large production and testing factories

The highest concentration of expertise



Using Plasma-Based Solutions
to Reduce the World's Carbon Footprint



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