



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

Investor Presentation

May 2022

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



# Forward-Looking Statement

## **About this Presentation**

This presentation is dated May 1<sup>st</sup>, 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, 2021 are available on SEDAR at [www.sedar.com](http://www.sedar.com), and on EDGAR at [www.sec.gov](http://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, 2021 available on SEDAR at [www.sedar.com](http://www.sedar.com), and on EDGAR at [www.sec.gov](http://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](http://www.sedar.com) and on EDGAR at [www.sec.gov](http://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**

**TSX: PYR**

**FRA: 8PY**

## **Sector**

Industrial Technology

## **Market Cap (4/27/22)**

USD\$364MM

CDN\$464MM





## 25+ years of R&D with Key Support

- U.S. Military since 1999
- U.S. and Canadian governments
- Leading aluminum producers
- Automotive and aerospace corps.



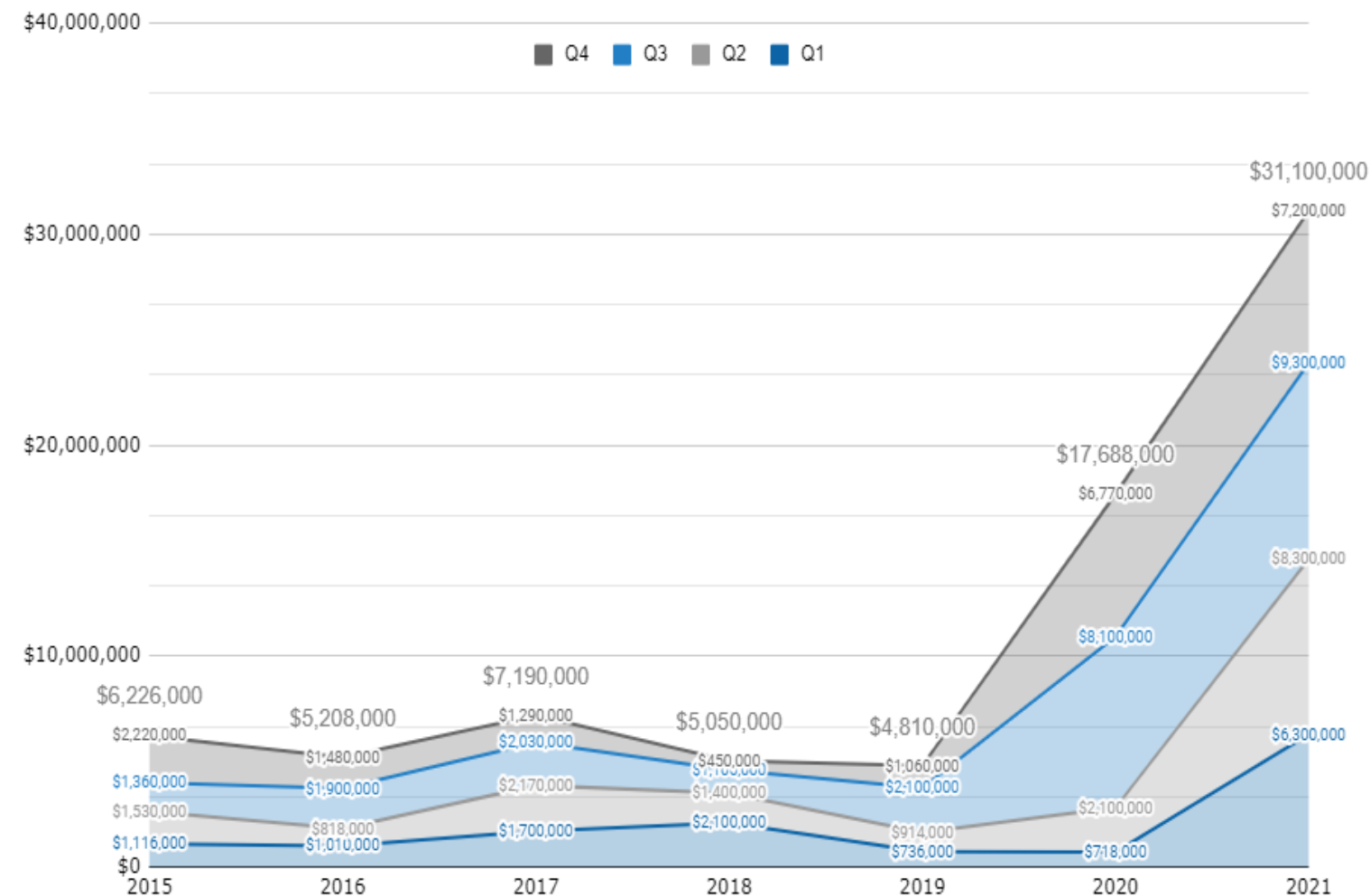
## Major Capital Market Entry

- TSX: November 2020
- Nasdaq: March 2021

## Since Up-list

- 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 1<sup>st</sup> acquisition
- Certification process w/global aerospace company

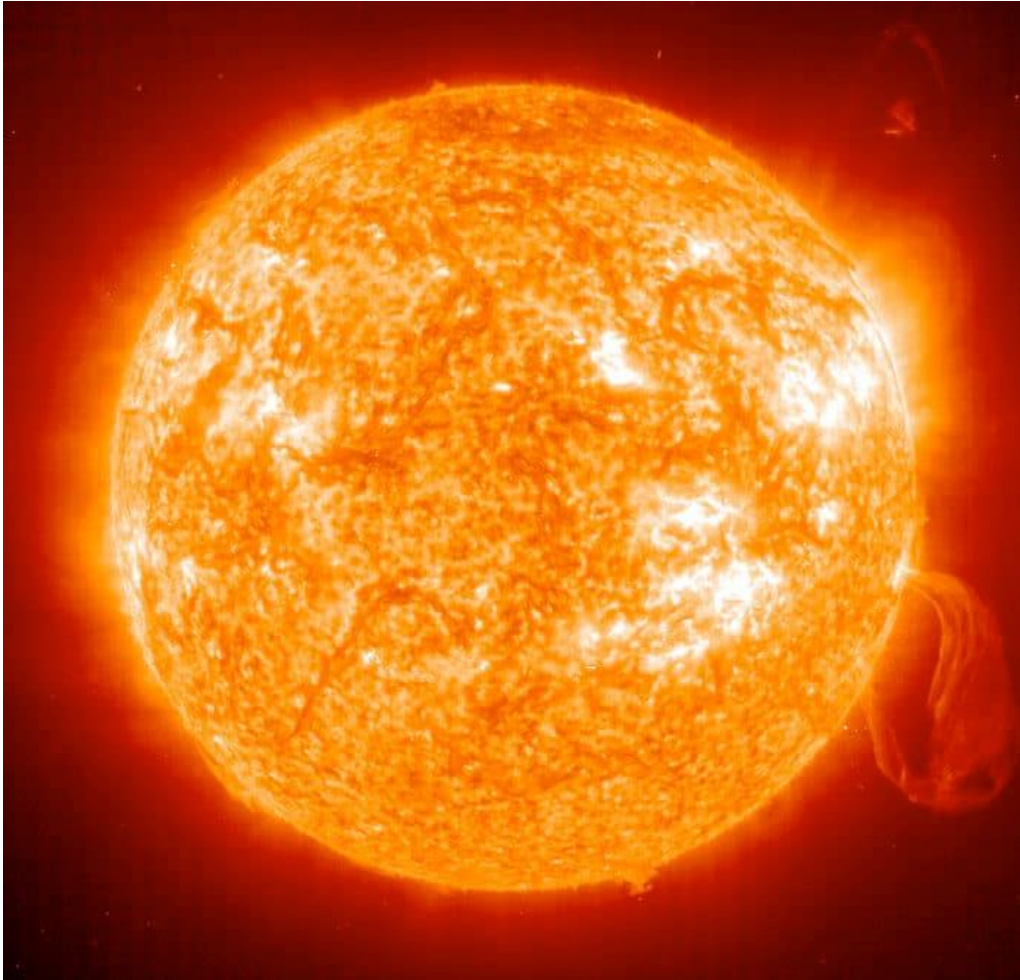


How it is.



What we do.





## Natural Plasma

- The 4<sup>th</sup> state of matter (Solid-Liquid-Gas-Plasma)
- 10,000°F on the surface
- 864,000 miles wide





## PyroGenesis Plasma

- Up to 10,000° F
- 50Kw to 2MW+
- 16" up to 16 feet
- ISO 9001 certified
- Full integration with computerized process control systems
- Used in various iterations across numerous global industries



## The Impact of Plasma

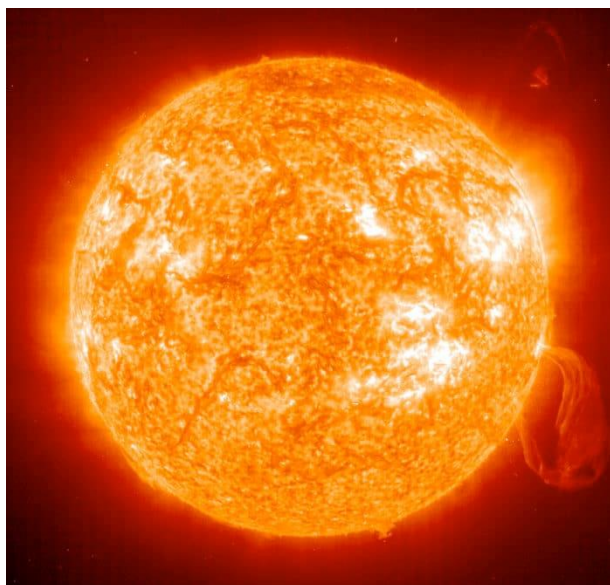
Heat

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



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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**



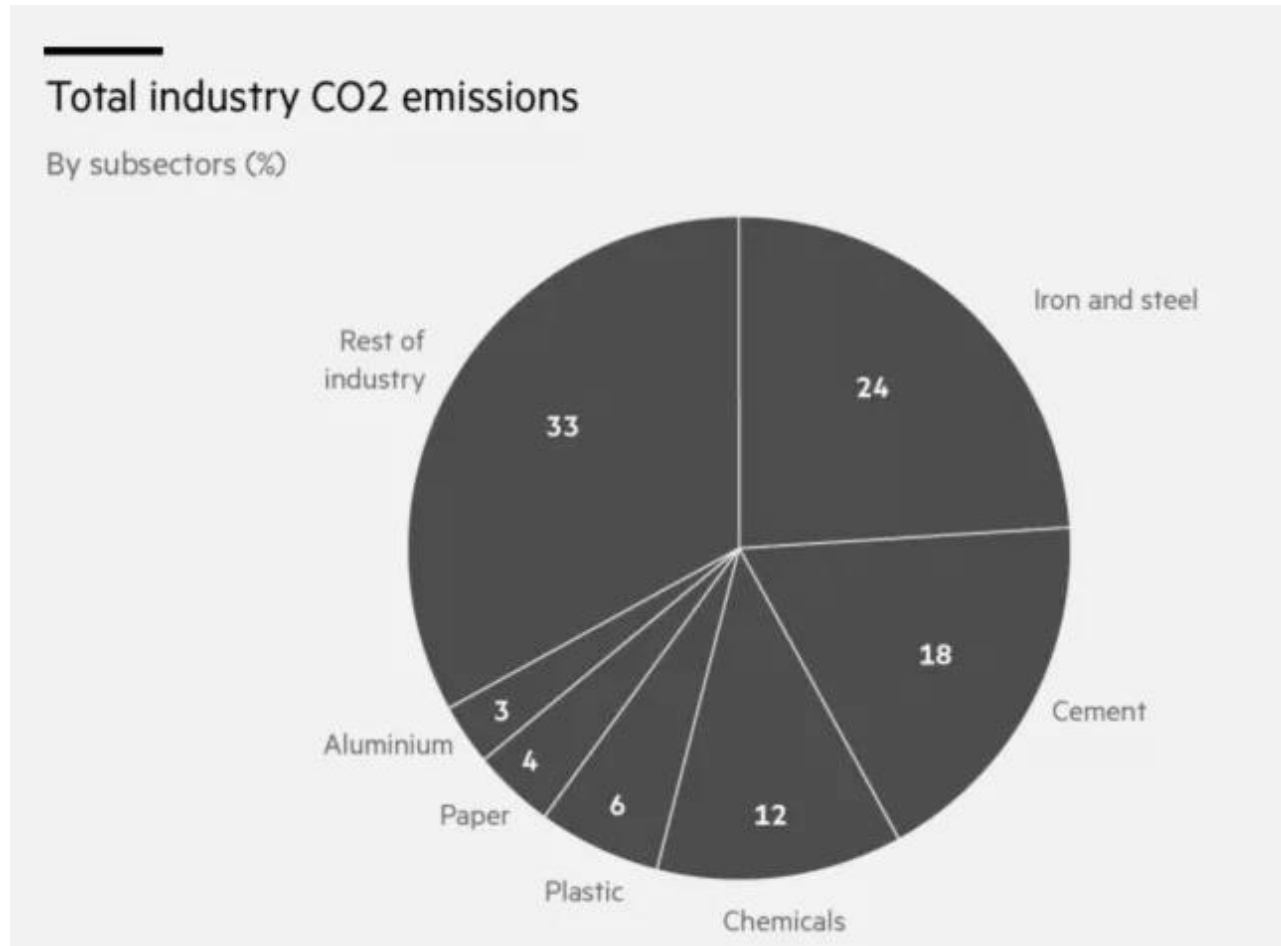
Metal Powders for  
3D Printing



Waste & Hazardous  
Chemical Destruction



## 1. Steelmaking & Iron Ore Business Unit



Steelmaking and iron account for 24% of all industrial CO2 emissions <sup>1</sup>



## 1. Steelmaking & Iron Ore Business Unit

### Upstream Iron Pelletizers Burn Pollutive Heavy Fuels



# 1. Steelmaking & Iron Ore Business Unit

## Upstream Steel & Iron Processes

### CHALLENGE

- Upstream process is heavily carbon dependent

### FOCUS

- Induration furnaces for iron ore pelletization

Current State

### Bunker Diesel

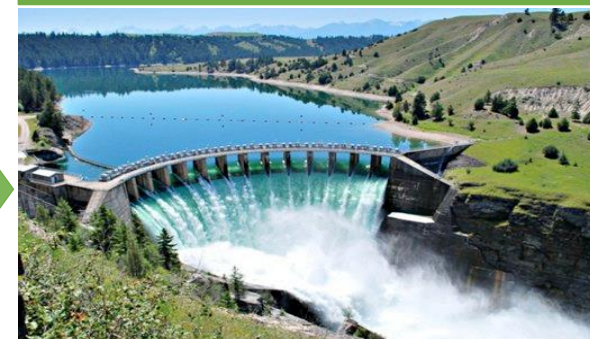


### PYROGENESIS SOLUTION

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

Future State

### 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

## Current Status

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

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



## 2. Aluminum Business Unit



Global aluminum demand is expected to grow 80% by 2050<sup>1</sup> ...

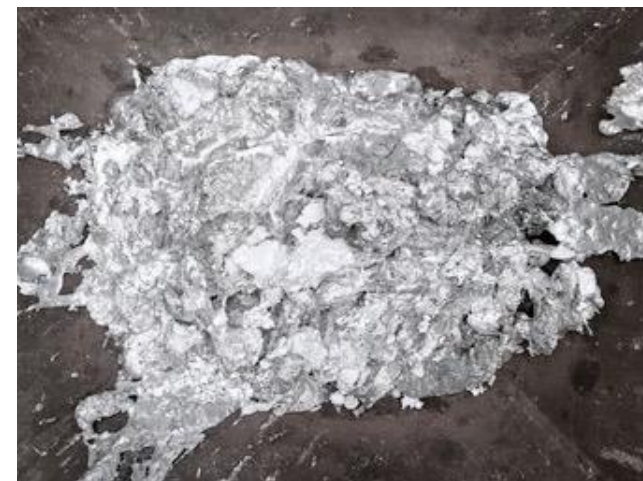
... while the industry struggles to meet carbon reduction targets<sup>2</sup>.

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

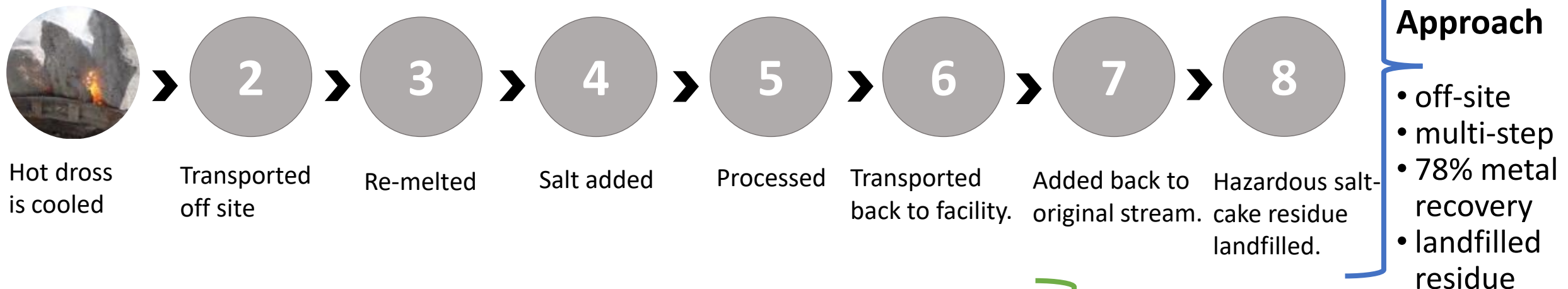
2. <https://www.iea.org/reports/aluminium>

## 2. Aluminum Business Unit

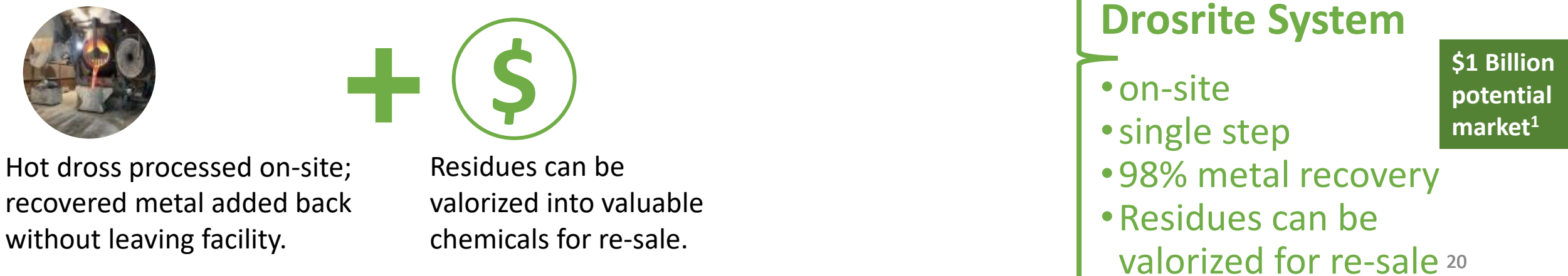
**Aluminum Dross is Poorly Processed, Landfilled as Waste**



### Traditional Multi-Step Dross Recovery Process



### PyroGenesis Dross & Residue Recovery Process





## 2. Aluminum Business Unit

### Continued Increase in Orders and Price



**Q1 2022:** 1<sup>st</sup> 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

Downstream

#### 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 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.

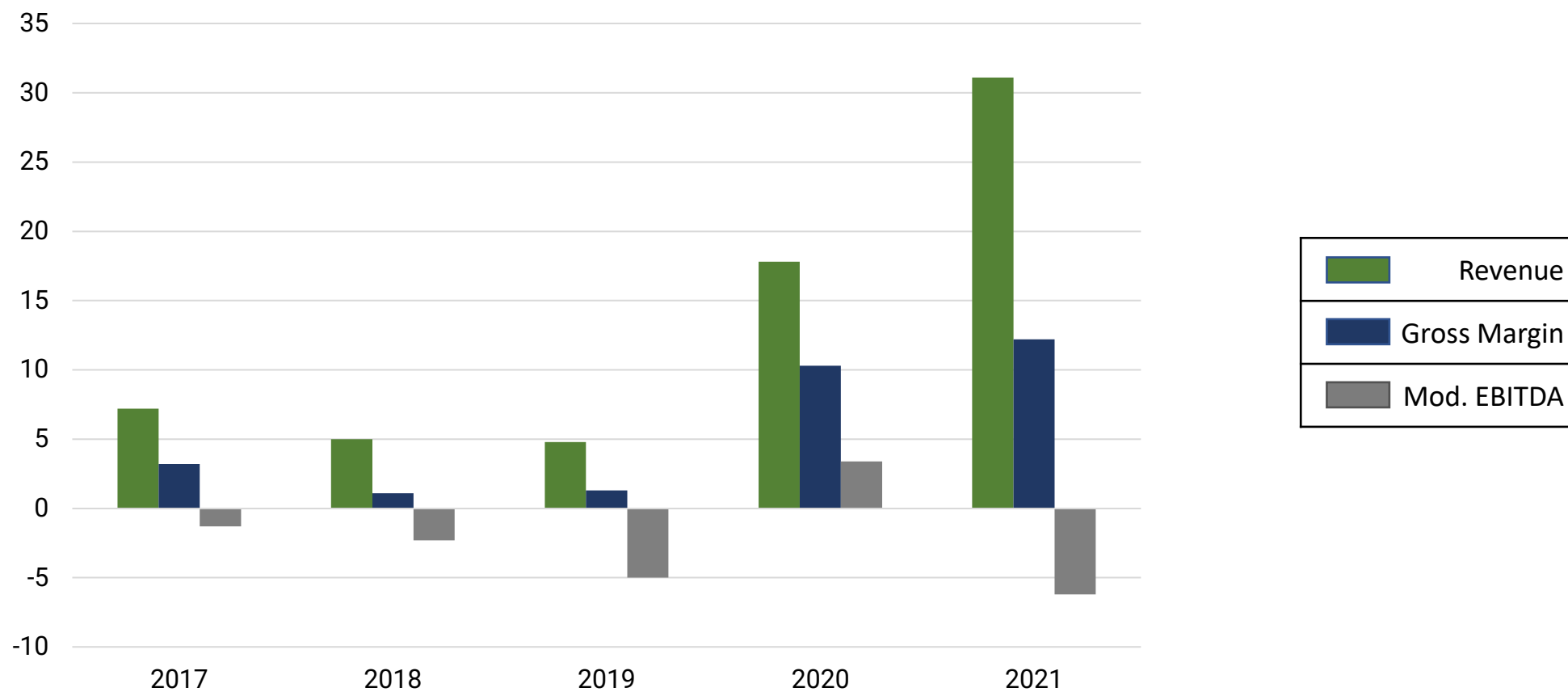
## Contracts from Multiple Business Lines

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

**\$38MM+** contracts announced in 2021.

**\$4MM** contracts announced in 2022 to date.

## Financial Results (\$ millions)



*\*Modified EBITDA excludes impact of investment in HPQ Silicon Resources Inc ad share bases expenses*



| PyroGenesis Canada Inc. (NASDAQ: PYR) (TSX: PYR) (FRA: 8PY) |  |
|---|--|
| Nasdaq Stock Price  | \$2.14   |
| Nasdaq Market Cap   | \$364.1MM  |
| TSX Stock Price   | \$2.76   |
| TSX Market Cap  | \$464.4MM  |
| Management/Board Ownership                                  | ~50%   |
| Options   | 6.285MM  |
| Debt  | ~\$0   |
| Cash on Hand (as of 12/31/21)                               | ~12.20MM   |
| Backlog of Signed/Awarded Contracts (as of 03/31/22)        | \$47.7MM   |
| ETF   | Ark PRNT 3D Printing   |
| Indexes   | FTSE Russell Global Total Cap<br>FTSE Russell Global Small Cap |

Solid Balance Sheet, No Debt, Cash on Hand.  
Increase Awareness Among Indexes.

## Organic Growth

- Natural growth via strong balance sheet
- Insider “golden ticket” advantage
  - Cross sell
  - Uncover new opportunities
- 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



## Scalable Manufacturing to Support Growth



✓ Capacity to support a multi-fold increase in projects and staff

✓ High incremental margins by leveraging fixed costs

PyroGenesis' Two Manufacturing Facilities:

Turcot & Wanklin: 40,900 ft<sup>2</sup> & 31,645 ft<sup>2</sup> located in Montreal, Canada

## Summary

- ✓ Advanced technologies – vetted and adopted by multiple global industry leaders
- ✓ Over 110 patents granted or pending in the U.S., Canada, and international markets
- ✓ Fully commercialized solutions being actively marketed in five massive markets
- ✓ Long tail of potential additional large-market applications
- ✓ Strong balance sheet with approx. \$16M cash on hand and no long-term debt; allows acceleration of organic growth strategy as well as synergistic mergers and acquisitions
- ✓ Focus on GHG emissions reduction
- ✓ Significant upcoming catalysts

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





# PYROGENESIS

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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