

TSX: PYR | OTCQB:PYRNF | FRA: 8PY

Investor Presentation
January 7, 2021

Forward Looking Statement



- **About this Presentation**

This presentation is dated January 7, 2021 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 quarter ended September 30, 2020 are available on SEDAR at www.sedar.com, 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 September 30, 2020 available on SEDAR at www.sedar.com, 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 securities regulatory authorities from time to time, available under the Company's profile on SEDAR at www.sedar.com, 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.



Plasma: The Fourth State of Matter



1.
Solid



2.
Liquid



3.
Gas



4.
Plasma



Heat

Plasma Torches can heat gas up to 40,000°F, as hot as the surface of the sun. Thermal plasma uniquely enables the transformation of materials

PyroGenesis: Transforming Industries with Its Advanced Plasma Technology



PYROGENESIS

**A world leader in commercialized
advanced plasma technologies**

**+25 years
of plasma leadership**

**110+
patents**

**~70
employees**

**3,800 m²
facility**

**One of the highest
concentrations of plasma
expertise under one roof
in the world**

Focused on Large-scale Greenhouse Gas Emissions Reduction

Commercialization Capabilities Refined with the U.S. Military



As a leader in Plasma Technology, PyroGenesis was engaged by the US Navy to design, build, test and deliver the world's first plasma destruction system for marine use on U.S. Navy Aircraft Carriers

- Multimillion dollar contract to design, build, test and deliver 2 systems (installed in 2011 and 2016)**

- Additional 2 systems ordered (signed Sept. 4, 2020: \$11.5MM)**

- PyroGenesis' technology is specified into every Gerald R. Ford Class Supercarrier**



Validation of Large-Scale Commercial Capabilities

Four Massive Markets:

One Common Core Competency – Plasma Technology



1.
Iron Ore
Pelletization



2.
Aluminum Dross
Recovery



3.
Waste
Treatment



4.
Metal Powders for
Additive Manufacturing



Commercial Solutions for Large, Market Needs

Vetted and Adopted by Multi-Billion Dollar Industry Leaders

Iron Ore Pelletization:

Replacing Polluting Fossil Fuel Burners with Patented Clean Plasma Torch Solutions



CHALLENGE:

- Iron ore pelletization plants are being pressured to reduce greenhouse gas emissions by governments, lenders and customers

PYROGENESIS SOLUTION:

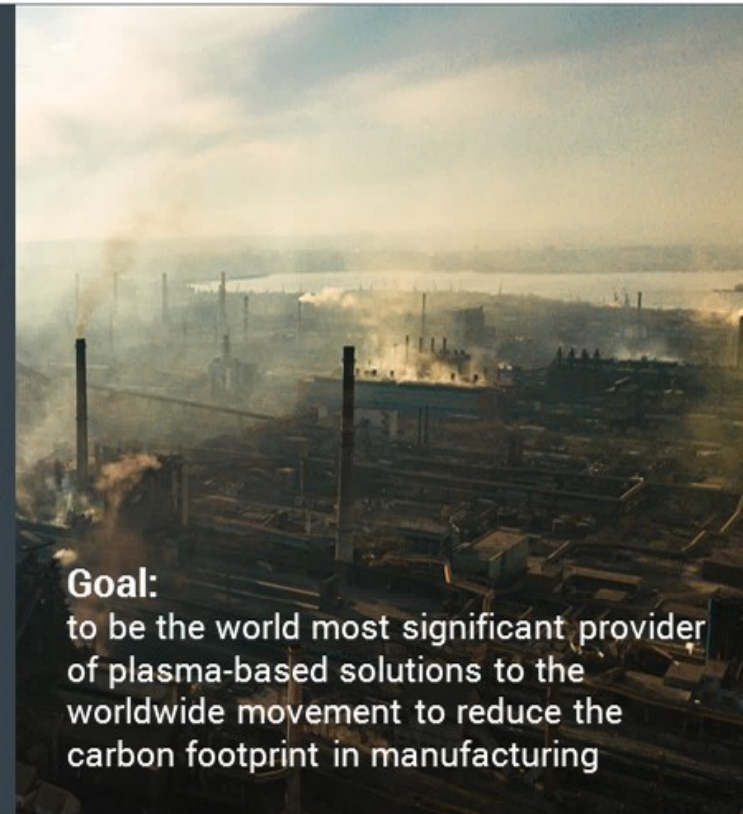
- A patented process to replace fossil fuel burners with clean burning plasma torches, thereby reducing GHG emissions, for the iron ore pelletization industry
- Economically superior with greater environmental benefits
- Received the "Solar Impulse Efficient Solution" Label from the Swiss-based Solar Impulse Foundation. Foundation's purpose is to identify existing solutions clean, profitable, and having a positive impact life.



The
that are
quality of

COMPETITIVE ADVANTAGE:

- Renewable energy reduces GHG emissions
- Easy conversion, no need to shut down entire facility for installation
- Minimal change to workflow



Goal:

to be the world most significant provider of plasma-based solutions to the worldwide movement to reduce the carbon footprint in manufacturing

Reducing Greenhouse Gas Emissions and Helping Mining and Metallurgical Companies Meet Carbon-Neutrality Goals

Iron Ore Pelletization: Massive Market Desperately Seeking Solutions



TODAY:

Initial \$1M Swedish contract
(to demonstrate benefits of replacing fossil fuel burners with PyroGenesis' plasma torches)

Subsequent modeling contracts proved

- No ancillary detrimental effects at any stage of the process or with the clients' furnaces
- Significant greenhouse gas emissions reduction
- Significant additional benefits

Signs Initial \$1.8M Contract with Client A for 1 plasma torch to replace fossil fuel burners

IN NEGOTIATION:

Client A, B and C

- Potential need for > 1,000 torches*
- \$3MM/torch (NPV)

*Estimation based on Internal Calculations

<https://www.eia.gov/outlooks/ieo/pdf/industrial.pdf>

<https://www.iea.org/commentaries/clean-and-efficient-heat-for-industry>

~\$10 Billion*

patented-protected
iron ore torch market

FUTURE OPPORTUNITIES FOR TECHNOLOGY EXPANSION

First Mover Advantage

- Cement
- Steel
- Aluminum
- Automotive

Transformative Technology, Minimal Disruption

Aluminum Dross Recovery:

Applying Innovative Technology
to Multimillion Dollar Metallurgy Problem; Reducing GHG emissions



CHALLENGE:

- Recover valuable metal from waste stream called Dross
- Traditional methods use salts, which result in hazardous waste (salt cakes)
- Dross contains up to 80% valuable aluminum

PYROGENESIS SOLUTION:

- DROSSRITE™: a proven, salt-free, on-site, cost-effective, sustainable process for maximizing metal recovery from dross without any hazardous by-products
- Reducing GHG emissions



Simplifying the Retrieval of Valuable Metals from Industrial Waste

Aluminum Dross Recovery

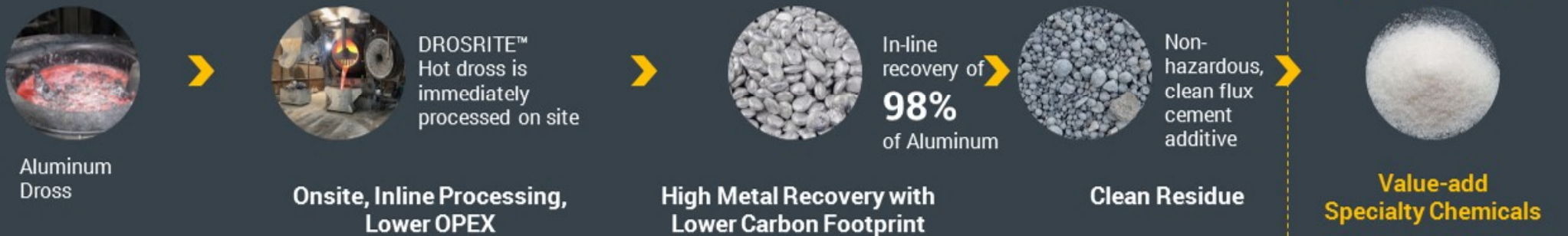
The Advantages of PyroGenesis' Technology



Traditional Process – Rotary Salt Furnace (RSF)



DROSRITE™



Better Recovery, Reduced Carbon Footprint And Energy Consumption = High Return On Investment

Aluminum Dross Recovery: Market Size



TODAY - \$1 Billion potential DROSRITE™ market¹:

- 2016: 1st order \$600K
- 2017: 2nd order from the same Client for \$1MM
- 2018 : 2-system order
- 2019/2020: 7-systems ordered for ~ +\$20MM

TOLLING, a turnkey solution processing solution for smelters with ZERO CAPEX.

¹ 3,000,000 TPY of Aluminum dross (2017)*
(~600 Systems for ~\$1 billion)

*AlCircle « Aluminum Dross Processing: A global review », 2017
TPY= Metric Tonne Per Year of Dross

FUTURE OPPORTUNITIES FOR TECHNOLOGY EXPANSION:

The On-Site Advantage:

Inside the fence “Golden Ticket” to identify additional on-site opportunities for expanded offerings

Converting Residue to high valuable chemical products:

- Examples:
 - Ammonium sulphate
 - Aluminum sulphate

A Turnkey Solution for Smelters with ZERO CAPEX Requirements

Waste Treatment:

Efficient Plasma Gasification Systems



COMPLETE, EASY-TO-OPERATE, HIGH TEMPERATURE, PLASMA-BASED TREATMENT SYSTEM

- Plasma-based solutions for a wide range of wastes (municipal, hazardous, hospital & industrial)
- Fully automatic, safe, easy to operate technology converts inorganic waste feed into an inert, non-toxic residue

BUILT ON THE SUCCESS OF THE US NAVY RELATIONSHIP/CONTRACTS

- \$11.5MM Contract for 2 additional systems currently in construction (signed Sept. 2020)
- Up to 10 more supercarriers projected to be ordered¹
- ~\$2MM/yr in after-sales services/improvements

¹ Report to Congress, October 7, 2020

FUTURE OPPORTUNITIES FOR TECHNOLOGY EXPANSION

Land-Based Applications

- Plasma Based Technology for "Board Room" Waste
- Waste Destruction
- Waste-to-Energy



Proven at Sea, Expanding on Land

Additive Manufacturing:

Plasma Atomized Metal Powders



A proven and efficient method to make small, pure, spherical metal powders – the 'ink' for 3-D metal printers

CHALLENGE

- 3-D metal printers require affordable, high-quality, standardized metal powders

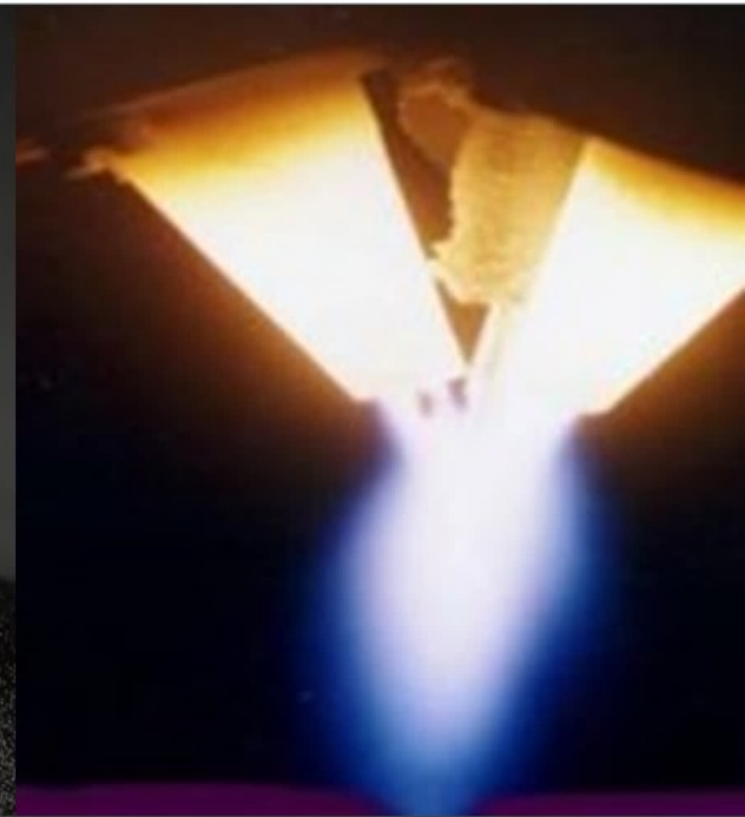
PYROGENESIS SOLUTION

- Plasma Atomization – invention to convert traditional metals and alloys into high purity spherical powders and specialty powders for the additive manufacturing, aerospace, biomedical, thermal spray, and metal injection molding industries

COMPETITIVE ADVANTAGE

- Patented NexGen® Plasma Atomization
 - Record-high output with lower OPEX and lower CAPEX*
 - 25+ kg/h vs. 10-12kg/hr standard process*
- Flexible system can generate a variety of preferred size powder with little to no waste

*Management Estimates



We believe Our Proprietary Technology is the Gold Standard Today

Additive Manufacturing: Market Size



**Exclusive Agreement with Aubert & Duval,
subsidiary of Eramet, as our European distributor**

- Highest quality metal powder
- Low OPEX & Low CAPEX



- In discussion with large North American OEM to install our record breaking technology into production lines

**FUTURE OPPORTUNITIES FOR
TECHNOLOGY EXPANSION**

~\$774 Million

global 3-D printing metals market in 2019
projected to grow to

~\$3.2 Billion

by 2024¹

Growth Driven by:

- Increased Demand
- Lower Manufacturing Costs

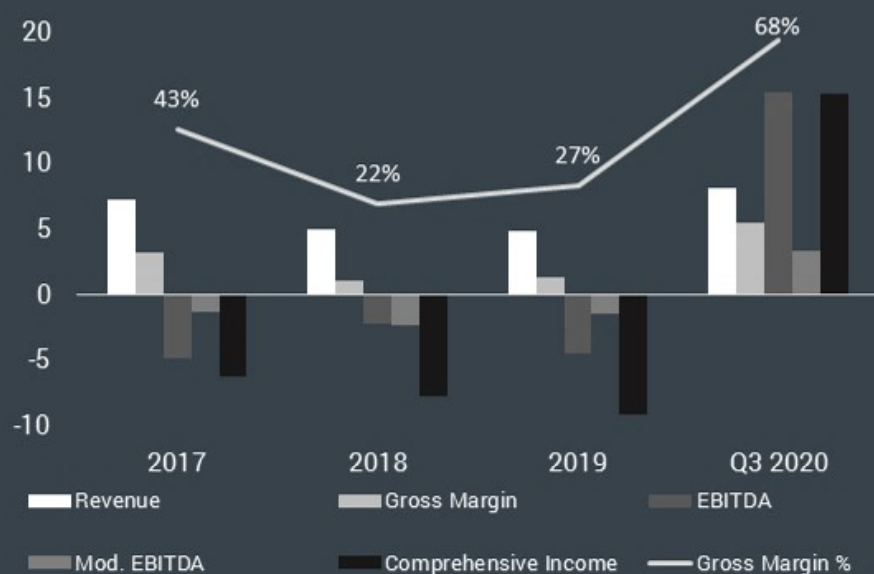
¹"3-D Printing Metals Market by Form, Technology, Metal Type, End-Use Industry, Region - Global Forecast to 2024" Report, Feb. 2020

Partnered with a Leading Provider of Innovative Metal Powders

At a Financial Inflection Point



FINANCIAL RESULTS (\$ millions)



BACKLOG (\$ millions)



*Modified EBITDA excludes impact of investment in HPQ Silicon Resources Inc and therefore reflects the profitability of operations.

*Backlog is as of the date of financial reporting for the reporting period in question.

Momentum in Backlog Expected to Drive Near-Term Profitability

Market Data & Capitalization Structure

(\$Can)



MARKET DATA (AS OF DEC. 31/20)

Listings	TSX: PYR OTCQB: PYRNF FRA: 8PY
Shares Outstanding	159.1M
Current Share Price (TSX)	\$3.62
Market Cap	~\$576MM
52-Week High/Low	\$6.43/\$0.19
Management & Board Ownership	>50%

CAPITALIZATION STRUCTURE

Shares Outstanding	159.1M
Cash on hand (PR dated Nov. 25, 2020)	\$17MM
Warrants Outstanding	8.2M
Debt	\$0

PYR Graduated to TSX on November 20, 2020

Guided by an Experienced Board



<p>P. Peter Pascali Founder, President and CEO Chair of the Board Director</p> <ul style="list-style-type: none"> • Founded PyroGenesis • 12+ years in investment banking in NYC 	<p>Michael Blank, CA, CPA Member of the Audit Committee Acting CFO Director</p> <ul style="list-style-type: none"> • 30+ years of executive experience in leading finance and operations for private and public organizations
<p>Robert Radin Member of the Audit Committee Director</p> <ul style="list-style-type: none"> • US Army Major General (Ret.) 	<p>Rodney Beveridge Member of the Audit Committee Director</p> <ul style="list-style-type: none"> • Vice President, Portfolio Manager at TD Wealth Private Investment Advice • 15+ years of financial markets expertise
<p>Andrew Abdalla, CPA, CA Chair of the Audit Committee Director</p> <ul style="list-style-type: none"> • Partner at MNP • 20+ years in strategic planning, & tax advice (sales and income tax, acquisitions and divestitures, business valuations, corporate reorganizations & spinoffs) 	<p>Rodayna Kafal Director</p> <ul style="list-style-type: none"> • Vice President, Investor Relations & Strategic Business Development, PyroGenesis • 10+ years of engineering expertise, sales, promotional activities and business relations
<p>Dr. Virendra Jha Director</p> <ul style="list-style-type: none"> • Member of the Order of Canada • 42+ years of experience in the Canadian Space Program, ranging from in-depth engineering work to senior management positions in both the private and the public sectors 	

Investment Highlights



POSITIONED TO DRIVE NEAR- AND LONG-TERM SHAREHOLDER VALUE

- **Proprietary, patented advanced plasma technologies – vetted and adopted by multiple multibillion dollar industry leaders**
- **Fully commercialized solutions** being actively marketed in four massive, unaddressed market opportunities
- **Long-tail** of potential additional large-market applications
- At an inflection point from initial commercialization to **large-scale commercialization** and sales growth and momentum
- **Momentum in backlog expected to drive near-term profitability**

Very Strong Alignment Of Management And Shareholders

PyroGenesis: At the Forefront of Plasma Technology Development & Commercialization



1.
Iron Ore
Pelletization



2.
Aluminum
Dross
Recovery



3.
Waste
Treatment



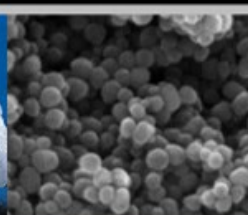
4.
Metal Powders
for Additive
Manufacturing



Future
Opportunity 1:
Quartz to High
Purity Silicon
Metal
[paid for
development with
HPQ]



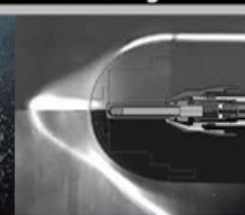
Future
Opportunity 2:
+ Silicon Metal to
Nanopowders and
Wire
Lithium Ion
Batteries



Future
Opportunity 3:
DROSRITE™
residue
refinement



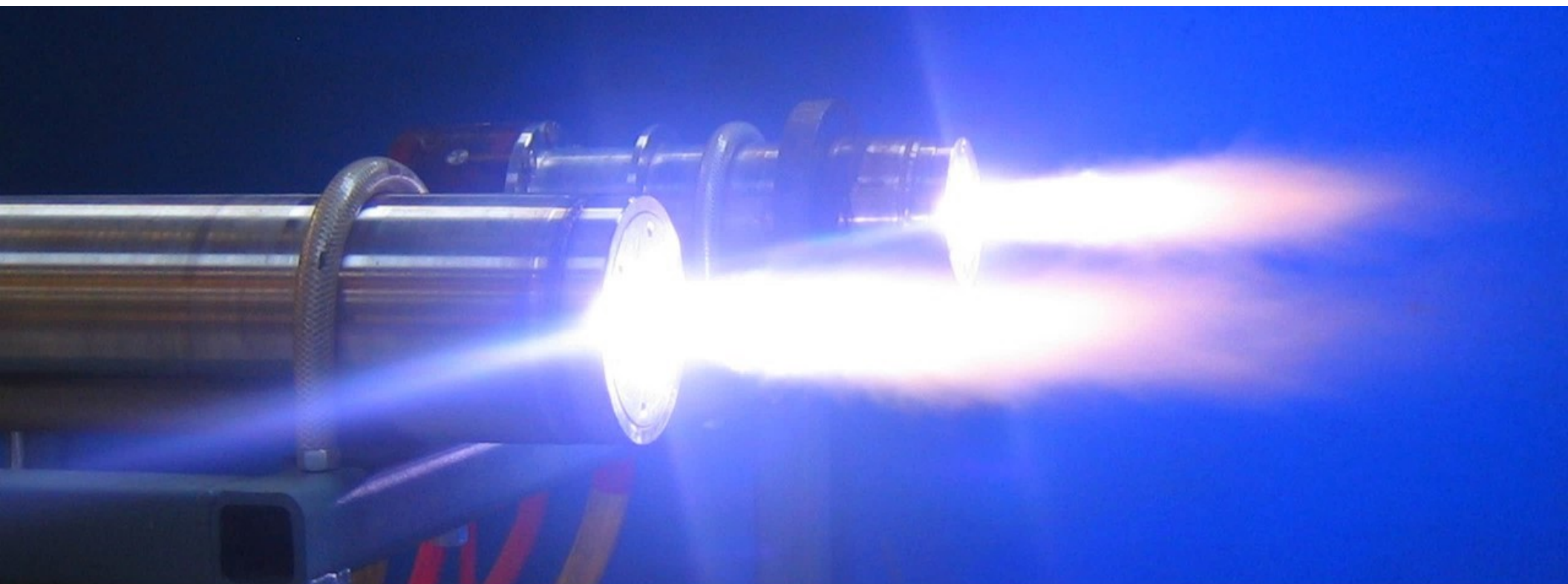
Future
Opportunity 4:
Plasma Torch Use
in Tunneling



Today:
Transforming Four Industries with
Commercialized Plasma Solutions

The Future:
Multiple Derivative Opportunities Already
Identified

At an Inflection Point from Initial Commercialization to
Large-Scale Commercialization with Sales Growth and Momentum



TSX: PYR | OTCQB:PYRNF | FRA: 8PY

Investor Presentation

January 7, 2021