UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 20549

FORM 6-K

REPORT OF FOREIGN PRIVATE ISSUER PURSUANT TO RULE 13a-16 OR 15d-16 UNDER THE SECURITIES EXCHANGE ACT OF 1934

For the month of August 2021

Commission File Number: **001-39989**

PYROGENESIS CANADA INC.
(Translation of registrant's name into English)

1744, William St. Suite 200
Montreal, QC, H3J1R4
Canada
(Address of principal executive office)

Indicate by check mark whether the registrant files or will file annual reports under cover of Form 20-F or Form 40-F.
Form 20-F [ ]   Form 40-F [X]

Indicate by check mark if the registrant is submitting the Form 6-K in paper as permitted by Regulation S-T Rule 101(b)(1): ____

Note: Regulation S-T Rule 101(b)(1) only permits the submission in paper of a Form 6-K if submitted solely to provide an attached annual report to security holders.

Indicate by check mark if the registrant is submitting the Form 6-K in paper as permitted by Regulation S-T Rule 101(b)(7): ____

Note: Regulation S-T Rule 101(b)(7) only permits the submission in paper of a Form 6-K if submitted to furnish a report or other document that the registrant foreign private issuer must furnish and make public under the laws of the jurisdiction in which the registrant is incorporated, domiciled or legally organized (the registrant's "home country"), or under the rules of the home country exchange on which the registrant's securities are traded, as long as the report or other document is not a press release, is not required to be and has not been distributed to the registrant's security holders, and, if discussing a material event, has already been the subject of a Form 6-K submission or other Commission filing on EDGAR.

Exhibits

99.1	Condensed Interim Financial Statements Three months ended June 30, 2021 and 2020
99.2	Management's Discussion and Analysis
99.3	Form 52-109F2 CEO Certification of Interim Filings
99.4	Form 52-109F2 CFO Certification of Interim Filings

SIGNATURES

Pursuant to the requirements of the Securities Exchange Act of 1934, the registrant has duly caused this report to be signed on its behalf by the undersigned, thereunto duly authorized.

PYROGENESIS CANADA INC.
(Registrant)

Date:August 16, 2021

/s/ P. Peter Pascali
P. Peter Pascali
Chief Executive Officer

Exhibit 99.1

PyroGenesis Canada Inc.

Condensed Consolidated
Interim Financial Statements
Three and six months ended June 30, 2021 and 2020

(Unaudited)

The accompanying unaudited financial statements of PyroGenesis Canada Inc. have been prepared by and are the responsibility of the Company’s management. The Company’s independent auditor has not performed a review of these unaudited condensed consolidated interim financial statements for the period ended June 30, 2021.

PyroGenesis Canada Inc.
Condensed Consolidated Interim Statements of Financial Position
(Unaudited)

	June 30, 2021	December 31, 2020
	$	$
Assets		
Current assets		
Cash and cash equivalents *[note 5]*	**18,076,539**	18,104,899
Accounts receivable *[note 6]*	**12,794,723**	3,329,653
Costs and profits in excess of billings on uncompleted contracts and projects *[note 7]*	**1,282,913**	1,073,633
Investment tax credits and government wage subsidy receivable *[note 8]*	**208,280**	567,059
Current portion of deposits *[note 10]*	**2,198,387**	1,421,246
Current portion of royalties receivable	**235,588**	-
Contract assets	**517,574**	694,301
Other assets	**2,547,792**	145,996
Total current assets	**37,861,796**	25,336,787
Non-current assets		
Deposits *[note 10]*	**340,586**	301,341
Strategic investments *[note 9]*	**24,564,642**	39,991,750
Property and equipment *[note 11]*	**3,417,979**	2,529,570
Right-of-use assets *[note 12]*	**5,607,785**	3,701,000
Royalties receivable	**888,740**	1,060,000
Investment tax credits receivable	-	705,316
Intangible assets	**1,001,470**	905,614
Total assets	**73,682,998**	74,531,378
Liabilities		
Current liabilities		
Accounts payable and accrued liabilities *[note 13]*	**4,206,974**	4,708,051
Billings in excess of costs and profits on uncompleted contracts and projects *[note 14]*	**5,071,056**	6,592,972
Current portion of term loans *[note 15]*	**12,638**	12,208
Current portion of lease liabilities	**197,512**	225,977
Total current liabilities	**9,488,180**	11,539,208
Non-current liabilities		
Lease liabilities	**4,830,871**	2,762,565
Term loans *[note 15]*	**99,936**	100,499
Deferred income taxes	-	706,000
Total liabilities	**14,418,987**	15,108,272
Shareholders' equity *[note 16]*		
Common shares and warrants	**81,346,092**	67,950,069
Contributed surplus	**14,437,934**	10,480,310
Deficit	**(36,520,015)**	(19,007,273)
Total shareholders' equity	**59,264,011**	59,423,106
Total liabilities and shareholders' equity	**73,682,998**	74,531,378

Contingent liabilities, subsequent events *[notes 23, 26]*

Approved on behalf of the Board:

[Signed by P. Peter Pascali] P. Peter Pascali

[Signed by Ben Simo] Ben Simo

PyroGenesis Canada Inc.
Condensed Consolidated Interim Statements of Comprehensive (Loss) Income
(Unaudited)

	Three months ended June 30,		Six months ended June 30,	
	2021	2020	**2021**	2020
	$	$	**$**	$
Revenues *[note 4]*	**8,280,572**	2,128,454	**14,545,075**	2,847,362
Cost of sales and services *[note 18]*	**3,347,091**	861,862	**7,468,584**	1,313,356
Gross Profit	**4,933,481**	1,266,592	**7,076,491**	1,534,006
Expenses (income)				
Selling, general and administrative *[note 18]*	**6,660,573**	1,664,976	**10,386,009**	2,941,567
Research and development	**710,734**	(3,867)	**997,041**	19,221
	7,371,307	1,661,109	**11,383,050**	2,960,788
Net (loss) from operations	**(2,437,826)**	(394,517)	**(4,306,559)**	(1,426,782)
Changes in fair market value of strategic investments *[note 9]*	**(17,884,293)**	5,899,465	**(12,249,571)**	5,407,441
Finance costs, net *[note 19]*	**(40,086)**	(276,928)	**(93,172)**	(509,665)
Net (loss) earnings before income taxes	**(20,362,205)**	5,228,020	**(16,649,302)**	3,470,995
Income taxes - current	-	-	**706,000**	-
Income taxes – deferred	-	-	**(706,000)**	-
Net (loss) income and comprehensive (loss) income	**(20,362,205)**	5,228,020	**(16,649,302)**	3,470,995
(Loss) Earnings per share *[note 20]*				
Basic	**(0.12)**	0.04	**(0.10)**	0.02
Diluted	**(0.11)**	0.03	**(0.09)**	0.02

The accompanying notes form an integral part of the condensed consolidated interim financial statements.

PyroGenesis Canada Inc.
Condensed Consolidated Interim Statements of Changes in Shareholders' Equity
(Unaudited)

	Number of Common Shares	Common shares and warrants	Contributed Surplus	Equity portion of convertible debentures	Deficit	Total
		$	$	$	$	$
Balance - December 31, 2020	**159,145,993**	**67,950,069**	**10,480,310**	**-**	**(19,007,273)**	**59,423,106**
Share issued on exercise of stock options	**444,500**	**657,845**	**(253,400)**	**-**	**-**	**404,445**
Share issued on exercise of warrants and compensation options	**8,337,897**	**13,085,197**	**-**	**-**	**-**	**13,085,197**
Shares purchased for cancellation	**(166,684)**	**(347,019)**	**-**	**-**	**(863,440)**	**(1,210,459)**
Share-based payments	**-**	**-**	**4,211,024**	**-**	**-**	**4,211,024**
Net (loss) and comprehensive (loss)	**-**	**-**	**-**	**-**	**(16,649,302)**	**(16,649,302)**
Balance – June 30, 2021	**167,761,706**	**81,346,092**	**14,437,934**	**-**	**(36,520,015)**	**59,264,011**
Balance - December 31, 2019	141,303,451	47,073,243	6,679,730	401,760	(60,237,656)	(6,082,923)
Share issued on exercise of stock options	1,728,000	975,035	(387,035)	-	-	588,000
Shares issued upon exercise of share purchase warrants	4,030,300	3,160,669	-	-	-	3,160,669
Conversion of debentures into shares	3,369,375	3,056,481	-	(360,981)	-	2,695,500
Shares purchased for cancellation	(1,285,000)	(426,370)	-	-	(538,021)	(964,391)
Equity component of convertible debentures	-	-	40,779	(40,779)	-	-
Share-based payments	-	-	94,504	-	-	94,504
Equity component of convertible debentures issued	-	-	-	98,422	-	98,422
Net income and comprehensive income	-	-	-	-	3,470,995	3,470,995
Balance – June 30, 2020	149,146,126	53,839,058	6,427,978	98,422	(57,304,682)	3,060,776

The accompanying notes form an integral part of the condensed consolidated interim financial statements.

PyroGenesis Canada Inc.
Condensed Consolidated Interim Statements of Cash Flows
(Unaudited)

	Three months ended June 30,		Six months ended June 30,	
	2021	2020	**2021**	2020
	$	$	**$**	$
Cash flows provided by (used in)				
Operating activities				
Net (loss) income	**(20,362,205)**	5,228,019	**(16,649,302)**	3,470,992
Adjustments for:				
Share-based payments	**3,288,685**	23,637	**4,211,025**	94,504
Depreciation on property and equipment	**84,061**	10,057	**160,378**	20,113
Depreciation of right-of-use assets	**149,217**	88,205	**251,011**	177,570
Amortization of intangibles assets	**6,779**	6,813	**13,559**	13,626
Amortization of contract assets	**171,206**	-	**306,069**	-
Finance costs	**40,085**	276,929	**93,172**	509,665
Change in fair value of investments	**17,884,293**	(5,899,465)	**12,249,571**	(5,407,441)
	1,262,121	(265,805)	**635,483**	(1,120,971)
Net change in non-cash operating working capital items *[note 17]*	**(8,544,450)**	(753,741)	**(14,552,934)**	368,493
	(7,282,339)	(1,019,546)	**(13,917,451)**	(752,478)
Investing activities				
Purchase of property and equipment	**(635,312)**	(104,455)	**(1,184,888)**	(104,455)
Addition to right-of-use assets	**(36,903)**	-	**(36,903)**	-
Purchase of intangible assets	**(31,484)**	(15,611)	**(107,152)**	(15,611)
Purchase of strategic investments	**(5,804,327)**	(60,000)	**(9,196,511)**	(60,000)
Disposal of strategic investments	**1,507,746**	-	**12,374,048**	-
Variation of deposits	**-**	5,785	**-**	(3,765)
	(5,000,280)	(174,281)	**1,848,594**	(183,831)
Financing activities				
Repayment of R&D loans	**-**	(214,000)	**-**	(214,000)
Repayment of term loan *[note 15]*	**(3,025)**	-	**(5,998)**	-
Repayment of convertible debenture	**-**	(4,500)	**-**	(358,500)
Repayment of lease liabilities	**(25,965)**	(33,654)	**(81,051)**	(68,272)
Repayment of promissory notes payables to the controlling shareholder and CEO	**-**	(295,000)	**-**	(295,000)
Proceeds from issuance of shares upon exercise of stock options	**398,065**	141,600	**404,445**	588,000
Proceeds from issuance of shares upon exercise of warrants and compensation options	**5,027,616**	3,160,669	**13,085,197**	3,160,669
Share purchase for cancellation	**(1,210,459)**	(964,391)	**(1,210,459)**	(964,391)
Interest paid	**(101,427)**	(168,536)	**(151,636)**	(281,851)
	4,084,805	1,622,188	**12,040,498**	2,469,655
Net (decrease) increase in cash	**(8,197,805)**	428,361	**(28,360)**	1,533,346
Cash - beginning of period	**26,274,344**	1,139,416	**18,104,899**	34,431
Cash - end of period	**18,076,539**	1,567,777	**18,076,539**	1,567,777
Supplemental cash flow disclosure				
Non-cash transactions:				
Purchase of property and equipment included in accounts payables	**136,101**	86,962	**41,092**	-
Purchase of intangibles assets included in accounts payables	**2,263**	168,527	**55,539**	-
Addition of right-of-use assets and lease liabilities	**2,120,892**	-	**2,120,892**	-

The accompanying notes form an integral part of the condensed consolidated interim financial statements.

1. Nature of operations

(a) Nature of operations

PyroGenesis Canada Inc. (the “Company”), incorporated under the laws of the Canada Business Corporations Act, was formed on July 11, 2011. The Company owns patents for advanced waste treatment systems technology and designs, develops, manufactures and commercialises advanced plasma processes and systems. The Company is domiciled at 1744 William Street, Suite 200, Montreal, Quebec. The Company is publicly traded on the Toronto Stock Exchange (TSX) under the Symbol “PYR” and on the Frankfurt Stock Exchange (FSX) under the symbol “8PY “, and since March 11, 2021, on NASDAQ in the USA under the symbol “PYRNF”.

2. Basis of preparation

(a) Statement of compliance

These condensed consolidated interim financial statements have been prepared in accordance with International Financial Reporting Standard (“IFRS”) as issued by the International Accounting Standards Board ("IASB"). These condensed consolidated interim financial statements do not include all of the necessary information required for full annual financial statements in accordance with IFRS and should be read in conjunction with the Company’s audited financial statements for the year ended December 31, 2020.

These condensed consolidated interim financial statements were approved and authorized for issuance by the Board of Directors on August 16, 2021.

(b) Functional and presentation currency

These condensed consolidated interim financial statements are presented in Canadian dollars, which is the Company’s functional currency.

(c) Basis of measurement

These financial statements have been prepared on the historical cost basis except for:

(i) strategic investments which are accounted for at fair value,
(ii) stock-based payment arrangements, which are measured at fair value on grant date pursuant to IFRS 2, Share-based Payment; and
(iii) Lease liabilities, which are initially measured at the present value of minimum lease payments.

(d) Basis of consolidation

For financial reporting purposes, subsidiaries are defined as entities controlled by the Company. The Company controls an entity when it has power over the investee; it is exposed to, or has rights to, variable returns from its involvement with the entity; and it has the ability to affect those returns through its power over the entity.

2. Basis of preparation (continued)

In instances where the Company does not hold a majority of the voting rights, further analysis is performed to determine whether or not the Company has control of the entity. The Company is deemed to have control when, according to the terms of the shareholder's and/or other agreements, it makes most of the decisions affecting relevant activities.

Theses consolidated financial statements include the accounts of the Company and its subsidiary Drosrite International LLC. Drosrite International LLC is owned by a member of the Company's key management personnel and close member of the CEO and controlling shareholder's family and is deemed to be controlled by the Company. All significant transactions and balances between the Company and its subsidiary have been eliminated upon consolidation.

3. Significant accounting judgments, estimates and assumptions

The significant judgments, estimates and assumptions applied by the Company's in these condensed consolidated interim financial statements are the same as those applied by the Company in its audited annual financial statements as at and for the year ended December 31, 2020.

The COVID-19 pandemic continues to evolve as vaccination campaigns are currently underway in Canada and other countries in which the Company operates while more contagious variants of the virus have evolved. The financial effect of the pandemic is still uncertain at this time as is the Company's business continuity plans and other mitigating measures. Estimates of the length and seriousness of these developments is therefore subject to significant uncertainty, and accordingly estimates of the extent to which the COVID-19 pandemic may materially and adversely affect the Company's operations, financial results and condition in future periods are also subject to significant uncertainty.

Therefore, uncertainty about judgments, estimates and assumptions made by management during the preparation of the Company's interim consolidated financial statements related to potential impacts of the COVID-19 pandemic on revenue, expenses, assets, liabilities, and note disclosures could result in a material adjustment to the carrying value of the asset or liability affected.

4. Revenues

The Company's revenues are generated from PUREVAP™ related sales of $4,521,539 (2020 - $43,058), DROSRITE™ related sales of $4,389,606 (2020 - $1,794,336), the development and support related to systems supplied to the U.S. Navy of $4,719,208 (2020 - $61,039), torch related sales of $752,835 (2020 – $705,022), and other sales and services of $161,887 (2020 - $243,907).

The following is a summary of the Company's revenues for the six months ending June 30, by revenue recognition method:

4. Revenues (continued)

	2021	2020
	$	$
Revenue from contracts with customers:		
Sales of goods under long-term contracts	10,717,275	2,174,828
Sales of goods in point of time	**527,800**	630,297
Sale of intellectual properties	**3,300,000**	-
Other revenues	-	42,237
	14,545,075	2,847,362

See note 23 for sales by geographic area.

As at June 30, 2021, revenue expected to be recognized in the future related to performance obligations that are unsatisfied (or partially satisfied) at the reporting date is $20,405,109. Revenue will be recognized as the Company satisfies its performance obligations under long-term contracts, which is expected to occur over the next 3 years.

5. Cash and cash equivalents

As at June 30, 2021, there are no restrictions on cash and cash equivalents. Cash and cash equivalents include the following components:

	June 30, 2021	December 31, 2020
	$	$
Cash	**10,076,539**	10,104,899
Guaranteed investment certificates	**8,000,000**	8,000,000
Cash and cash equivalents	**18,076,539**	18,104,899

Guaranteed investment certificates are instruments issued by Canadian financial institutions and include $3,000,000 bearing interest at a rate of 0.51% and $5,000,000 bearing interest at a rate of 0.53%. These instruments are redeemable without penalty 60 days and 30 days, respectively, from the date of acquisition and mature in July August 2021 and December 2021.

6. Accounts receivable

Details of accounts receivable were as follows:

	June 30, 2021	December 31, 2020
	$	$
1 – 30 days	**4,100,123**	309,362
31 – 60 days	-	226,713
61 – 90 days	**3,814,556**	253,141
Greater than 90 days	**1,480,934**	218,008
Total trade accounts receivable	**9,395,613**	1,007,224
Unbilled trade receivables	**2,915,972**	1,132,911
Other receivables	**45,669**	931,041
Sales tax receivable	**437,469**	258,477
	12,794,723	3,329,653

There is no allowance for expected credit losses recorded as at June 30, 2021 and December 31, 2020.

7. Costs and profits in excess of billings on uncompleted contracts and projects

As at June 30, 2021, the Company had eight uncompleted contracts and projects with total billings of $6,865,387 which were less than total costs incurred and had recognized cumulative revenue of $8,148,300 since those contracts and projects began. This compares with seven contracts with total billings of $8,378,093 which were less than total costs incurred and had recognized cumulative revenue of $9,451,726 as at, December 31, 2020.

Changes in costs and profits in excess of billings on uncompleted contracts during the three and six months ended June 30, 2021 are explained by $56,180 and $61,373 recognized at the beginning of the year being transferred to accounts receivable, and by $774,188 and $270,652 resulting from changes in the measure of progress.

8. Investment tax credits and government wage subsidy

As at, June 30, 2021 investment tax credits related to qualifying projects from the provincial government were $101,309 (2020 - $131,871) and $Nil (2020 - $1,058,017) of investment tax credits earned in prior years that met the criteria for recognition. The Company also recorded for the six months ended June 30, 2021 $41,106 (2020 - $18,420) of the investment tax credits against cost of sales and services, $45,203 (2020 - $1,141,468) against research and development expenses and $15,000 (2020 - $30,000) against selling general and administrative expenses. An additional amount of $106,971 of 2020 investment tax credits is a receivable for the Company.

9. Strategic investments

	June 30, 2021	December 31, 2020
	$	$
Beauce Gold Fields ("BGF") shares – level 1	**210,288**	123,095
HPQ Silicon Resources Inc. ("HPQ") shares - level 1	**19,759,372**	16,489,220
HPQ warrants – level 3	**4,594,982**	23,379,435
	24,564,642	39,991,750

Investments in HPQ (TSXV: HPQ) comprise 27,830,100 common shares (2020 - 18,450,000) and 9,594,600 warrants (2020 - 16,250,000).

Investment in BGF (TSXV: BGF) consists of 1,025,794 of common shares. The 1,025,794 common shares of BGF were received in December 2018 as dividend in kind from a spinoff of HPQ.

The change in strategic investments is summarized as follows:

	("BGF") shares – level 1		HPQ shares – level 1		("HPQ") Warrants - level 3	
	Quantity	**$**	**Quantity**	**$**	**Quantity**	**$**
Balance, December 31, 2019	1,025,794	133,354	18,450,000	1,476,000	17,750,000	-
Additions	-	-	7,887,000	3,395,742	5,200,000	560,000
Received in lieu of payment of services rendered	-	-	4,394,600	395,514	4,394,600	-
Exercised	-	-	1,500,000	540,000	(1,500,000)	(337,500)
Disposed	-	-	(17,241,400)	(10,798,056)	-	-
Change in the fair value	-	(10,259)	-	21,480,020	-	23,156,935
Balance, December 31, 2020	1,025,794	123,095	14,990,200	16,489,220	25,844,600	23,379,435
Additions	-	-	6,348,000	6,677,761	-	-
Exercised	-	-	16,250,000	2,518,750	(16,250,000)	(893,750)
Disposed	-	-	(9,758,100)	(3,391,118)	-	-
Change in the fair value	-	87,193	-	(2,535,241)	-	(17,890,703)
Balance, June 30, 2021	**1,025,794**	**210,288**	**27,830,100**	**19,759,372**	**9,594,600**	**4,594,982**

As at June 30, 2021, the fair value of the HPQ warrants was measured using the Black-Scholes option pricing model using the following assumptions:

Number of Warrants	1,200,000	4,394,600	4,000,000
Date of Issuance	April 29, 2020	June 2, 2020	September 3, 2020
Exercise Price	0.10	0.10	0.61
Assumption under the Black Sholes model:			
Fair Value of the shares ($)	0.71	0.71	0.71
Risk free interest rate (%)	0.44	0.44	0.44
Expected Volatility (%)	115.90	114.74	110.39
Expected dividend yield	0	0	0
Contractual remaining life (number of months)	22	23	26

9. Strategic investments (continued)

As at June 30, 2021, a gain from initial recognition of warrants of $674,983 has been deferred off balance sheet until realized.

10. Deposits

	June 30,2021	December 31, 2020
	$	$
Current portion:		
Suppliers	**2,198,387**	1,421,246
Non-current portion:		
Suppliers	**1,541**	1,099
Rent	**339,045**	300,242
Total non-current	**340,586**	301,341
Total Deposits	**2,538,973**	1,722,587

11. Property and equipment

	Computer equipment	**Machinery and equipment**	**Automobile**	**Leasehold improvements**	**Equipment under construction**	**Total**
	$	**$**	**$**	**$**	**$**	**$**
Cost						
Balance at December 31, 2019	521,998	1,621,899	21,912	165,006	1,671,962	4,002,767
Additions	27,671	-	306,164	15,895	268,272	618,002
Impairment	-	-	(21,912)	-	-	(21,912)
Balance at December 31, 2020	549,659	1,621,899	306,164	180,901	1,940,234	4,598,857
Additions	**199,496**	**-**	**30,495**	**772,719**	**46,077**	**1,048,787**
Impairment	**-**	**-**	**-**	**-**	**-**	**-**
Balance at June 30, 2021	**749,155**	**1,621,899**	**336,659**	**953,620**	**1,986,311**	**5,647,644**
Accumulated depreciation						
Balance at December 31, 2019	491,906	1,421,613	18,782	92,985	-	2,025,286
Depreciation	17,26	20,029	22,083	3,800	-	63,118
Impairment	-	-	(19,711)	-	-	(19,117)
Balance at December 31, 2020	509,112	1,441,642	21,748	96,785	-	2,069,287
Depreciation	**45,935**	**80,379**	**29,435**	**4,629**	**-**	**160,378**
Balance at June 30, 2021	**555,047**	**1,522,021**	**51,183**	**101,414**	**-**	**2,229,665**
Carrying amounts						
Balance at December 31, 2020	40,547	180,257	284,416	84,116	1,940,234	2,529,570
Balance at June 30, 2021	**194,108**	**99,878**	**285,477**	**852,205**	**1,986,311**	**3,417,979**

12. Leases

The Company has entered into lease contracts mainly for buildings and computer equipment, which expire at various dates through the year 2024. Some leases have extension or purchase options for various terms. The lease contracts do not impose any financial covenants.

As of June 30, 2021, the company entered into a new lease agreement for an additional 31,632 sq. ft..

12. Leases (continued)

a) Right-of-use assets

	Land and building	Computer equipment	Total
	$	$	$
Balance at December 31, 2020	3,688,315	12,685	3,701,000
Additions	2,157,795	-	2,157,795
Depreciation	(248,897)	(2,114)	(251,011)
Balance at June 30, 2021	**5,597,213**	**10,571**	**5,607,784**

b) The table below summarizes changes to the lease liabilities:

	Total
	$
Balance at December 31, 2020	2,988,542
Additions	2,120,892
Payments	(81,051)
Balance at June 30, 2021	**5,028,383**

Prepayments on the additional lease were included in the carrying amount of the right-of-use assets.

c) Amount recognized in the statement of comprehensive loss:

	June 30, 2021	December 31, 2020
	$	$
Depreciation of right-of-use assets	408,335	408,335
Interest on lease liabilities	136,928	211,666
Expense related to lease payments not included in the measurement of lease liabilities	44,459	-

c) Maturity analysis – contractual undiscounted cash flows of lease liabilities as at June 30, 2021

	$
2022	508,977
2023	2,998,925
2024	216,985
2025	222,742
2026	229,332
Thereafter	2,235,987
	6,412,948

13. Accounts payable and accrued liabilities

	June 30, 2021	December 31, 2020
	$	$
Accounts payable	**1,646,404**	2,206,249
Accrued liabilities	**1,688,378**	1,701,554
Sale commissions payable [1]	**800,812**	731,671
Accounts payable to the controlling shareholder and CEO	**71,380**	68,577
	4,206,974	4,708,051

[1]Sale commissions payable relate to the costs to obtain long-term contracts with clients.

14. Billings in excess of costs and profits on uncompleted contracts

The amount to date of costs incurred and recognized profits less recognized losses for construction projects in progress amounted to $17,392,951 (2020 - $6,831,326).

Payments to date received were $20,514,007 and $1,950,000 of deposits on contract in progress (2020 - $11,474,298 in cash and $1,950,000 of other assets).

Changes in billings in excess of costs and profits on uncompleted contracts during the three and six months ended June 30, 2021 are explained by $3,402,733 and $6,483,726 recognized as revenue, and a decrease of $4,539,591 and $4,961,809 resulting from cash received excluding amounts recognized as revenue.

15. Term loans

	EDC Loan[1]	**Other Term Loans[2]**	**Other Term Loans**	**2019 SR&ED Tax Credit loan**	**2018 SR&ED Tax Credit loan**	**Total**
	$	**$**	**$**	**$**	**$**	**$**
Balance, December 31, 2019	-	-	110,933	185,331	199,736	496,000
Additions	157,058	38,861	-	-	-	195,919
Conversion option	-	-	-	-	-	-
Financing costs	(83,119)	-	-	-	-	(83,119)
Accretion expense	1,861	-	4.267	40,902	14.264	61,294
Payments	-	(1,954)	(115,200)	(226,233)	(214,000)	(557,387)
Balance, December 31, 2020	75,800	36,907	-	-	-	112,707
Accretion expense	5,865	-	-	-	-	5,865
Payments	-	(5,998)	-	-	-	(5,998)
Balance, June 30, 2021	81,665	30,909	-	-	-	112,574
Less current portion	-	(12,638)	-	-	-	(12,638)
Balance, June 30, 2021	**81,665**	**18,271**	-	-	-	**99,936**

[1] maturing in 2027, non-interest bearing, payable in equal instalments from July 2023 to June 2027.
[2] maturing October 23, 2023, bearing interest at a rate of 6.95% per annum payable in monthly instalments of $1,200 secured by automobile (carrying amount of $36,702 as at December 31, 2020).

On March 5, 2020, the Company entered into a repayable contribution agreement of up to $450,000 under the Regional Economic Growth Through Innovation Program of the Economic Development Agency of Canada (“EDC”). The contribution is repayable in 60 equal monthly instalments due and payable 24 months

15. Term loans (continued)

following the completion of the project. During the year ended December 31, 2020, the Company received contribution totaling $157,058. The loan was discounted using the effective interest method. The effective interest rate on the loan is 15%.

16. Shareholders' equity

Common shares and warrants

Authorized:

The Company is authorized to issue an unlimited number of common shares without par value.

Issuance of shares

The following table sets out the activity in stock options during the six months ended June 30, 2021:

	Number of options	Weighted average exercise price
		$
Balance – December 31, 2020	**9,040,000**	**1.57**
Granted	**850,000**	**7.82**
Exercised	**(444,500)**	**0.91**
Cancelled/Forfeited	**(40,000)**	**4.41**
Balance, June 30, 2021	**9,405,500**	**2.16**

As at June 30, 2021, the outstanding options, as issued under the stock options plan to directors, officers, employees and consultants for the purchases of one common share per option, are as follows:

	Number of stock Options June 31, 2021	Exercise price per option	Expiry date
		$	
September 25, 2016	3,000,000	0.18	September 25, 2021
November 3, 2017	2,400,000	0.58	November 3, 2022
July 3, 2018	200,000	0.51	July 3, 2023
October 29, 2018	40,000	0.52	October 29, 2023
September 29, 2019	200,000	0.51	September 29, 2024
January 2, 2020	100,000	0.45	January 02, 2025
July 16, 2020	2,365,500	4.41	July 16, 2025
October 26, 2020	250,000	4.00	October 26, 2025
April 6, 2021	550,000	8.47	April 6, 2026
June 1, 2021	200,000	6.57	June 1, 2026
June 14, 2021	100,000	6.70	June 14, 2026
	9,405,500	2.16	

16. Shareholders' equity (continued)

Share purchase warrants

	Number of warrants December 31, 2020	Granted	Exercised	Number of warrants June 30, 2021	Price per warrant	Expiry date
					$	
Issuance of units – Sept 28, 2018	3,448,276	-	3,448,276	-	0.58	Jan 28, 2021
Issuance of units – Oct 19, 2018	100,000	-	100,000	-	0.58	Feb 13, 2021
Issuance of units – May 15, 2019	1,355,500	-	1,355,500	-	0.85	May 15, 2021
Issuance of units – May 24, 2019	750,000	-	750,000	-	0.85	May 24, 2021
Issuance of units – June 19, 2019	500,000	-	500,000	-	0.85	June 19, 2021
Issuance of units – Oct 25, 2019	225,000	-	225,000	-	0.75	Oct 25, 2021
Issuance of units – Nov 10, 2020	1,677,275	-	1,677,275	-	4.50	Nov 10, 2022
Issuance of warrants – Nov 10, 2020	95,707	-	95,707	-	4.50	Nov 10, 2022
	8,151,758	-	8,151,758	-	1.52	

The following table reflects the activity in warrants for the six months ended June 30, 2021 and the number of issued and outstanding share purchase warrants at June 30, 2021:

17. Supplemental disclosure of cash flow information

Net changes in non-cash components of operating working capital

	Three months ended June 30,		**Six months ended June 30,**	
	2021	2020	**2021**	2020
	$	$	**$**	$
Decrease (increase) in:				
Accounts receivable	**(6,266,190)**	(424,342)	**(9,465,070)**	(552,142)
Inventory	**(356,455)**	(9,245)	**(356,455)**	(9,245)
Costs and profits in excess of billings on uncompleted contracts	**(718,009)**	(38,080)	**(209,280)**	(83,005)
Investment tax credits receivable	**384,745**	(96,049)	**358,095**	(166,362)
Deposits	**565,714**	(4,701)	**(816,386)**	(305,795)
Other assets	**766,553**	24,950	**(2,045,341)**	51,331
Increase (decrease) in:				
Accounts payable and accrued liabilities	**(4,057,666)**	(1,200,907)	**(496,581)**	(1,052,244)
Billings in excess of costs and profits on uncompleted contracts	**1,136,858**	994,633	**(1,521,916)**	2,485,955
	(8,544,450)	(753,741)	**(14,552,934)**	368,493

18. Other information

The aggregate amortization of intangible assets expense for the three and six months ended June 30, 2021 was $6,779 and $13,559 (2020 - $6,813 and $13,626) and was recorded in cost of sales and services.

Depreciation on property and equipment amounted to $84,061 and $160,378 (2020 - $10,057 and $20,113) and depreciation on right of use assets amounted to $149,217 and $251,011 (2020 - $88,205 and $177,570) for the three and six months ended June 30, 2021 and is recorded in selling, general and administrative. Employee benefits totaled $5,338,199 and $8,232,101 in the three and six months ended June 30, 2021 (2020 - $1,245,974 and $2,738,007) and include share-based compensation of $3,288,685 and $4,211,025 (2020 – $23,638 and $94,504).

The Company has been awarded various grants during the three and the six months period, which were recognized when they became receivable. The grants, received in these periods, are unconditional and amounted to $87,565 and $146,744 respectively (2020 - $102,797 and $321,433). The grants received were recorded as a reduction to the related expenses in research and development and an amount of $Nil (2020 - $12,500) was recorded as a reduction to the related expenses in selling, general and administrative.

19. Net finance costs:

	Three months ended June 30,		**Six months ended June 30,**	
	2021	2020	**2021**	2020
	$	$	**$**	$
Finance costs				
Interest and fees on convertible debentures	-	68,832	-	143,952
Interest accretion of convertible debentures	-	123,538	-	167.633
Interest on term loans	**2,987**	15,944	**9,438**	50,909
Interest on lease liabilities	**90,947**	62,689	**136,928**	125,924
Interest accretion on promissory notes	-	4,401	-	18,859
Accretion of Royalty Receivable	**(64,329)**	-	**(64,329)**	
Other interest expenses	**10,481**	1,524	**11,135**	2,388
Net finance costs	**40,086**	276,628	**93,172**	509,665

20. (Loss) Earnings per share

The following table provides a reconciliation between the number of basic and fully diluted shares outstanding:

	Three months ended June 30,		**Six months ended June 30,**	
	2021	2020	**2021**	2020
	#	#	**#**	#
Weighted daily average of Common shares	**166,289,320**	144,354,683	**163,769,415**	143,319,985
Dilutive effect of stock options	-	3,092,134	-	2,367,903
Dilutive effect of warrants	-	3,934,847	-	957,718
Dilutive effect of convertible debentures	-	899,823	-	607,345
Weighted average number of diluted shares	**166,289,320**	152,281,488	**163,769,415**	147,252,951
Number of anti-diluted stock options, warrants, convertible debentures and convertible loans excluded from fully diluted earnings per share calculation	**9,405,500**	9,451,867	**9,405,500**	9,226,867

21. Related party transactions

During the three and six months ended June 30, 2021, the Company concluded the following transactions with related parties:

The Company entered into a lease agreement for the rental of a property with a trust whose beneficiary is the controlling shareholder and CEO of the Company. As at June 30, 2021 the carrying amount of the right-of-use asset and lease liabilities are $1,217,844, and $110,117, respectively (2020 - $3,701,000 and $2,988,542).

An amount of $68,825 and $137,284 was charged by a trust whose beneficiary is the controlling shareholder and CEO for rent and property taxes (2020 - $68,686 and $136,733 of rent and property taxes).

A balance due to the controlling shareholder and CEO of the Company amounted to $71,380 (2020 - $72,188) for expense report, salary and vacation payables and is included in accounts payable and accrued liabilities as at June 30, 2021.

An amount of $Nil (Q2, 2020 - $4,413), of interest payable and $Nil (2020 - $17,937) of accretion expense were accrued on a convertible loan of $295,000 from the controlling shareholder and CEO of the Company. A balance due of $Nil is included in accounts payable and accrued liabilities.

An amount of $Nil (Q2, 2020 - $30,960), of interest payable were accrued on a convertible loan of $903,000 from a trust whose beneficiary is the controlling shareholder and CEO of the Company and are included in accounts payable and accrued liabilities.

21. Related party transactions (continued)

The key management personnel of the Company are the members of the Board of Directors and certain officers. Total compensation to key management consisted of the following:

	Three months ended June 30,		**Six months ended June 30,**	
	2021	2020	**2021**	2020
	$	$	**$**	$
Salaries – officers	**218,656**	117,648	**460,215**	380,318
Pension contributions	**3,971**	3,097	**8,407**	5,866
Fees – Board of Directors	**41,500**	-	**75,000**	44,000
Share – based compensation – officers	**1,312,708**	63,177	**1,792,325**	65,299
Share – based compensation – Board of Directors	**1,539,634**	(43,448)	**1,711,850**	18,793
Other benefits – officers	**43,363**	232,466	**53,352**	237,853
Total compensation	**3,159,832**	372,940	**4,101,149**	752,129

A balance of $88,255 of key management compensation, of the amounts noted above, is included in accounts payable and accrued liabilities as at June 30, 2021 (2020 - $102,625).

22. Financial instruments

As part of its operations, the Company carries a number of financial instruments. It is management's opinion that the Company is not exposed to significant interest, currency or credit risks arising from these financial instruments except as otherwise disclosed. The Company's overall risk management program focuses on the unpredictability of the financial market and seeks to minimize potential adverse effects on the Company's financial performance. The Company does not use derivative financial instruments to hedge these risks.

Foreign currency risk

The Company enters into transactions denominated in US dollars for which the related revenues, expenses, accounts receivable and accounts payable and accrued liabilities balances are subject to exchange rate fluctuations.

As at June 30, 2021 the following items are denominated in US dollars:

	June 30, 2021 CDN	December 31, 2020 CDN
	$	$
Cash	601,455	1,366,627
Accounts receivable	5,466,438	621,817
Accounts payable and accrued liabilities	(502,135)	(252,463)
Total	**5,565,758**	**1,735,981**

Foreign currency risk is the risk that the fair value or future cash flows of a financial instrument will fluctuate because of changes in foreign exchange rates.

22. Financial instruments (continued)

Sensitivity analysis

At June 30, 2021, if the US Dollar changes by 10% against the Canadian dollar with all other variables held constant, the impact on pre-tax gain or loss for the year ended June 30, 2021 would have been $556,576 (2020 – $174,000).

Credit risk

Credit risk is the risk that one party to a financial instrument will cause a financial loss for the other party by failing to discharge an obligation. The maximum credit risk to which the Company is exposed as at June 30, 2021 represents the carrying amount of cash, accounts receivable and deposits.

Credit concentration

During the three and six months ended June 30, 2021, three customers accounted for 47%, 26%,18% and 31%, 31%, 29% respectively of revenues from operations.

	Three months ended June 30, 2021		**Six months ended June 30, 2021**	
	Revenues	**% of total revenues**	**Revenues**	**% of total revenues**
	$	**%**	**$**	**%**
Customer 1	**3,899,682**	**47**	**4,524,768**	**31**
Customer 2	**2,133,187**	**26**	**4,504,590**	**31**
Customer 3	**1,466,349**	**18**	**4,199,455**	**29**
Total	**7,499,218**	**91**	**13,228,813**	**91**

Two customers accounted for 95% (December 31, 2020 – two customers for 69%) of trade accounts receivable with amounts owing to the Company of $8,961,341 (2020 - $1,211,177), representing the Company's major credit risk exposure. Credit concentration is determined based on customers representing 10% or more of total revenues and/or total accounts receivable. The Company believes that there is no unusual exposure associated with the collection of these receivables. The Company manages its credit risk by performing credit assessments of its customers and provides allowances for potentially uncollectible accounts receivable. The Company does not generally require collateral or other security from customers on accounts receivable.

Fair value of financial instruments

Financial instruments are comprised of cash, accounts receivable, investments, deposits, accounts payable and accrued liabilities, term loans, long-term debt and convertible debentures. There are three levels of fair value that reflect the significance of inputs used in determining fair values of financial instruments:

Level 1 — quoted prices (unadjusted) in active markets for identical assets or liabilities.

Level 2 — inputs other than quoted prices included within Level 1 that are observable for the asset or liability, either directly (i.e., as prices) or indirectly (i.e., derived from prices).

Level 3 — inputs for the asset or liability that are not based on observable market data.

22. Financial instruments (continued)

Investments in BGF shares are valued as at June 30, 2021 at quoted market prices and are classified as Level 1. Investments in BGF shares were valued as at December 31, 2018 based on a valuation technique that estimates a business' value based on a recent round of financing and were classified as Level 3.

Investments in HPQ shares are valued at quoted market prices and are classified as Level 1.

Investments in HPQ warrants are valued using the Black-Scholes pricing model and are classified as Level 3.

The fair values of cash, accounts receivable, accounts payable and accrued liabilities, and term loans approximate their carrying amounts due to their short-term maturities.

The fair value of the long-term debt approximates their carrying amounts due to their recent issuance.

Interest rate risk

Interest rate risk is the risk that the value of a financial instrument might be adversely affected by a change in interest rates. Changes in market interest rates may have an effect on the cash flows associated with some financial assets and liabilities, known as cash flow risk, and on the fair value of other financial assets or liabilities, known as price risk, and on the fair value of investments or liabilities, known as price risks. The Company is exposed to a risk of fair value on the term loans and convertible debentures as those financial instruments bear interest at fixed rates.

Price risk

Price risk is the risk that the fair value or future cash flows of a financial instrument will fluctuate because of changes in market price (other than those arising from foreign currency risk and interest risk), whether those changes are caused by factors specific to the individual financial instrument or its issuers or factors affecting all similar financial instruments traded in the market. The most significant exposure to the price risk for the Company arises from its investments in shares of public companies quoted on the TSXV Exchange. If equity prices had increased or decreased by 25% as at June 30, 2021, with all other variables held constant, the Company's investments would have increased or decreased respectively, by approximately $6,527,000 (2020 - $11,874,375).

Liquidity risk

Liquidity risk is the risk that the Company will encounter difficulty in meeting obligations associated with financial liabilities that are settled by delivery of cash or another financial asset. The Company's ability to continue as a going concern is dependent on management's ability to raise required funding through future equity and / or debt issuances and to generate positive cash flows from operations (see note 1 (b)). The Company manages its liquidity risk by forecasting cash flows from operations and anticipating any investing and financing activities. Management and the Board of Directors are actively involved in the review, planning and approval of significant expenditures and commitments.

22. Financial instruments (continued)

The following table summarizes the contractual maturities of financial liabilities as at June 30, 2021:

	Carrying Value	Total contractual amount	Less than 1 year	2-3 years	4-5 years	Over 5 years
	$	$	$	$	$	$
Accounts payable and accrued liabilities	4,206,974	4,206,974	4,206,974	-	-	-
Term loans	112,574	190,630	14,389	50,595	62,823	62,823
Lease liabilities	5,028,383	6,412,948	508,977	2,998,925	216,985	2,688,061
	9,347,931	10,810,552	4,730,340	3,049,520	279,808	2,750,884

23. Contingent liabilities

The Company is currently a party to various legal proceedings and a tax authorities' review. If management believes that a loss arising from these matters is probable and can reasonably be estimated, that amount of the loss is recorded. As additional information becomes available, any potential liability related to these matters is assessed and the estimates are revised, if necessary. Based on currently available information, management believes that the ultimate outcome of these matters, individually and in aggregate, will not have a material adverse effect on the Company's financial position or overall trends in results of operations.

The Company had received a government grant in prior years of approximately $800,000 to assist with the development of a new system of advanced waste treatment systems technology. The grant is potentially repayable at the rate of 3% of any consideration received as a result of the project, for which funding has been received, to a maximum of the actual grant received. This repayment provision will remain in effect until May 30, 2024. The Company abandoned the project in 2011 and accordingly, no amount is expected to be repaid.

24. Capital management

The Company's objectives in managing capital are:

a) To ensure sufficient liquidity to support its current operations and execute its business plan; and

b) To provide adequate return to the shareholders

The Company's primary objectives when managing capital is to ensure the entity continues as a going concern as well as to maintain optimal returns to shareholders and benefits for other stakeholders.

The Company currently funds these requirements from cash flows from operations and with financing arrangements with third parties and shareholders. The Company is not subject to any externally imposed capital requirements.

The Company monitors its working capital in order to meet its financial obligations. For the three and six months ending June 30, 2021, the Company's working capital was $28,373,616 (2020 – $13,797,579).

24. Capital management (continued)

The management of capital includes shareholders' equity for a total amount of $59,264,011 (2020 – $59,423,106) and debt of $112,574 (2020 - $112,707).

Although there were no significant changes in the Company's approach during fiscal 2020, the Company was able to retire its term loans and convert its convertible debentures to common shares. In order to maintain or adjust capital structure, the Company may issue new shares, sell portions of its strategic investment and periodically purchase its own shares on the open market.

25. Segment information

The Company operates in one segment, based on financial information that is available and evaluated by the Company's Board of Directors.

The Company's head office is located in Montreal, Quebec. The operation of the Company is located in one geographic area: Canada. The following is a summary of the Company's geographic information:

	Three months ended June 30,		**Six months ended June 30,**	
	2021	2020	**2021**	2020
	$	$	**$**	$
Revenue from external customers				
Canada	**3,937,462**	687,748	**4,736,895**	808,980
United States	**2,131,841**	1,357,072	**4,725,806**	1,865,217
Europe	**42,201**	377	**62,243**	1,339
Asia	**490**	25,441	**490**	26,065
Saudi Arabia	**1,466,349**	-	**4,199,455**	-
China	**40,999**	-	**48,617**	-
Africa	**3,679**	-	**3,679**	-
Mexico	**137,856**	33,675	**137,856**	33,675
South America	**519,695**	24,141	**630,034**	112,086
	8,280,572	2,128,454	**14,545,075**	2,847,362

The following is a summary of the Company's revenue by revenue recognition method:

	Three months ended June 30,		**Six months ended June 30,**	
	2021	2020	**2021**	2020
	$	$	**$**	$
Sales of goods under long-term contracts	**4,667,390**	1,536,877	**10,717,275**	2,174,828
Sales of goods in point of time	**313,182**	580,302	**527,800**	630,297
Sale of intellectual properties	**3,300,000**	-	**3,300,000**	-
Other revenues	-	21,275	-	42,237
	8,280,572	2,128,454	**14,545,075**	2,847,362

26. Subsequent events

On August 12, 2021, the Company acquired 100% of the capital stock of AirScience Technologies Inc ("AST") for a maximum total cash consideration of $4,400,000 pursuant to a letter of intent dated April 27, 2021. The purchase price will be paid upon AST meeting various contract and business-related milestones. AST, a Montreal-based company, offers technologies, equipment, and expertise in the area of biogas upgrading as well as air pollution controls. The Company incurred approximately $91,000 of related acquisition costs in first half of the current fiscal period which are reflected in general and administrative costs in the Consolidated Statement of Operations. As the acquisition of AST closed on August 12, 2021, the initial accounting for the business combination and the purchase price allocation have not yet completed at the time of this filing.

PyroGenesis Canada Inc.
Management's Discussion and Analysis
For the three and six month periods ended June 30, 2021 and 2020

This management's discussion and analysis ("MD&A") is intended to assist readers in understanding the business environment, strategies, performance and risk factors of PyroGenesis Canada Inc. ("PyroGenesis", or the "Company"). The MD&A provides the reader with a view and analysis, from the perspective of management, of the Company's financial results for the three and six months ended June 30, 2021. The MD&A has been prepared in accordance with National Instrument 51-102, Continuous Disclosure Requirements, and should be read in conjunction with the audited financial statements and related notes thereto of the Company for the year ended December 31, 2020.

The financial statements and MD&A have been reviewed by PyroGenesis' Audit Committee and were approved by its Board of Directors on August 16, 2021. The Board of Directors is responsible for ensuring that the Company fulfills its responsibilities for financial reporting and is ultimately responsible for reviewing and approving the MD&A. The Board of Directors carries out this responsibility principally through its Audit Committee. The Audit Committee is appointed by the Board of Directors and is comprised of independent directors. The Audit Committee reports its findings to the Board of Directors for its consideration when it approves the MD&A and financial statements for issuance to shareholders.

The following information takes into account all material events that took place up until August 16, 2021, the date on which the Company's Board of Directors approved this MD&A. Unless otherwise indicated, all amounts are presented in Canadian dollars. The Company's functional and reporting currency is the Canadian dollar.

Additional information regarding PyroGenesis is available on the System for Electronic Document

Analysis and Retrieval ("SEDAR) at www.sedar.com, the Electronic Data Gathering, Analysis, and Retrieval system ("EDGAR") at www.sec.gov, and on the Company's website at www.pyrogenesis.com.

FORWARD-LOOKING STATEMENTS

This MD&A 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 MD&A are forward-looking statements, including, without limitation, the Company's statements regarding its products and services; relations with suppliers and clients; future financial position; business strategies; 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. Although management of the Company believes that the expectations represented in such forward-looking statements are reasonable, there can be no assurance that such expectations will prove to be correct.

In particular, this MD&A contains forward-looking statements that relate, but are not limited, to:

- the Company's business strategies, strategic objectives and growth strategy;
- the Company's current and future capital resources and the need for additional financing;
- the Company's ability to increase sales, including the results of the successful completion of the Company's current projects;
- management's expectation that the Company will achieve sustained annual growth and profitability, and that gross margins will increase resulting in a decrease in cost of sales as a percentage of revenue; and
- the Company's overall financial performance.

By their nature, forward-looking statements require assumptions and are subject to inherent risks and uncertainties including those discussed herein. In particular, forward-looking statements relating to future sales, growth and profitability are based on the assumption that current projects will be completed, and the Company will be awarded certain anticipated contracts pursuant to recent negotiations with, and statements made by, third parties. There is significant risk that predictions and other forward-looking statements will not prove to be accurate. Readers are cautioned to not place undue reliance on forward-looking statements made herein because a number of factors could cause actual future results, conditions, actions or events to differ materially from the targets, expectations, estimates or intentions expressed in the forward-looking statements.

Many factors could cause the Company's actual results, performance or achievements to be materially different from any future results, performance or achievements that may be expressed or implied by forward-looking statements, including, without limitation, risks and uncertainties relating to: the strength of the Canadian, US and Asian economies; operational, funding, and liquidity risks; unforeseen engineering and environmental problems; delays or inability to obtain required financing and/or anticipated contracts; risks associated with licenses, permits and regulatory approvals; supply interruptions or labour disputes; the impact of the Coronavirus (COVID-19) outbreak on our business and our operations; foreign exchange fluctuations and collection risk; competition from other suppliers, or alternative, less capital intensive, energy solutions; and risk factors described elsewhere under the heading "Risk Factors" in this MD&A and the Annual Information Form, and elsewhere in this MD&A and other filings that the Company has made and may make in the future with applicable securities regulatory authorities. We caution that the foregoing list of factors is not exhaustive, and that, when relying on forward-looking statements to make decisions with respect to the Company, investors and others should carefully consider these factors, as well as other uncertainties and potential events, and the inherent uncertainty of forward-looking statements.

Although the Company has attempted to identify significant factors that could cause actions, events or results to differ materially from those described in forward-looking statements, there may be other factors that cause actions, events or results not to be as anticipated, estimated or intended. 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 MD&A, 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 herein are expressly qualified in their entirety by this cautionary statement. The forward-looking statements included in this MD&A are made as of the date of this MD&A or such other date specified herein.

BASIS OF PRESENTATION

For reporting purposes, we prepared the 2021 Q2 financial statements in accordance with International Financial Reporting Standards ("IFRS") as issued by the International Accounting Standards Board. The financial information contained in this MD&A was derived from the 2020 Financial Statements. Unless otherwise indicated, all references to "$" are to Canadian dollars. Unless otherwise indicated, all references to a specific "note" refer to the notes to the 2021 Q2 Financial Statements. Certain totals, subtotals and percentages throughout this MD&A may not reconcile due to rounding.

NON-IFRS MEASURES

This MD&A makes reference to certain non-IFRS measures. These measures are not recognized measures under IFRS and do not have a standardized meaning prescribed by IFRS and are therefore unlikely to be comparable to similar measures presented by other companies. Rather, these measures are provided as additional information to complement those IFRS measures by providing further understanding of our results of operations from management's perspective. Accordingly, these measures should not be considered in isolation nor as a substitute for analysis of our financial information reported under IFRS.

We use non-IFRS measures, including EBITDA, Adjusted EBITDA and Modified EBITDA. EBITDA, Adjusted EBITDA and Modified EBITDA are not considered an alternative to income or loss from operations, or to net earnings or loss, in the context of measuring a company's performance. These non-IFRS measures are used to provide investors with supplemental measures of operating performance and thus highlight trends in our business that may not otherwise be apparent when relying solely on IFRS measures. We also believe that securities analysts, investors and other interested parties frequently use non-IFRS measures in the evaluation of issuers. Our management also uses non-IFRS measures in order to facilitate operating performance comparisons from period to period, to prepare annual operating budgets and forecasts and to determine components of management compensation. Management believes that EBITDA, Adjusted 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 consequences, and other non-operating items not requiring cash outlays including the adjustment to the fair value of investments and share-based compensation.

EBITDA

We define EBITDA as Net Earnings before Net Financing Charges, Taxes, Depreciation and Amortization. See "Results of Operations - Reconciliation of Non-IFRS measures (EBITDA, Adjusted EBITDA and Modified EBITDA)".

Adjusted EBITDA

We define Adjusted EBITDA as Net Earnings before Net Financing Charges, Taxes, Depreciation, Amortization and other non-cash items including share-based payment costs, inventory and equipment write-offs, and the tax assessment. See "Results of Operations - Reconciliation of Non-IFRS measures (EBITDA, Adjusted EBITDA and Modified EBITDA)".

Modified EBITDA

We defined Modified EBITDA as Adjusted EBITDA before the change in fair value of investments. See "Results of Operations - Reconciliation of Non-IFRS measures (EBITDA, Adjusted EBITDA and Modified EBITDA)".

OVERVIEW

PyroGenesis Canada Inc. is a leader in the design, development, manufacture and commercialization of advanced plasma processes. We provide engineering and manufacturing expertise, cutting-edge contract research, as well as turnkey process equipment packages to the defense, metallurgical, mining, additive manufacturing (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 40,902 sq. ft. (3,800 m²) and 31,632 sq. ft. (2,940 m²) manufacturing facilities, 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, having been ISO certified since 1997. Our common shares are listed on the Toronto Stock Exchange (Ticker Symbol: PYR), NASDAQ (Ticker Symbol: PYR) and the Frankfurt Stock Exchange (FSX) (Ticker symbol: 8PY).

SELECTED FINANCIAL INFORMATION

	Three months ended June 30, 2021	2020	% Change 2021vs2020	Six months ended June 30, 2021	2020	% Change 2021vs2020
Revenues	**$ 8,280,572**	$ 2,128,454	289%	**$ 14,545,075**	$ 2,847,362	411%
Cost of sales and services	**3,347,091**	861,862	288%	**7,468,584**	1,313,356	469%
Gross margin	**4,933,481**	1,266,592	290%	**7,076,491**	1,534,006	361%
Expenses						
Selling, general and administrative (not including share-based expenses)	**3,371,888**	1,641,336	105%	**6,174,984**	2,847,061	117%
Research and development	**710,734**	(3,867)	18,479%	**997,041**	19,221	5,087%
Total expenses (not including share-based expenses)	**4,082,622**	1,637,469	149%	**7,172,025**	2,866,282	150%
Net income from operations (not including share-based expenses)	**850,859**	(370,879)	329%	**(95,534)**	(1,332,278)	-93%
Share-based expense	**(3,288,685)**	(23,638)	13,813%	**(4,211,025)**	(94,504)	4,356%
Net (loss) income from operations	**(2,437,826)**	(394,517)	518%	**(4,306,559)**	(1,426,782)	202%
Changes in fair market value of strategic investments and finance costs	**(17,924,379)**	5,622,537	-419%	**(12,342,743)**	4,897,776	-352%
Income taxes	-	-		-	-	
Net (loss) income and comprehensive (loss) income	**$ (20,362,205)**	$ 5,228,020	-489%	**$ (16,649,302)**	$ 3,470,995	-580%
(Loss) Earnings per share						
Basic	**$ (0.12)**	$ 0.04		**$ (0.10)**	$ 0.02	
Diluted	**$ (0.11)**	$ 0.03		**$ (0.09)**	$ 0.02	
Modified EBITDA [1]	**$ 1,090,915**	$ (265,804)	510%	**$ 329,416**	$ (1,120,968)	129%

[1] See "Non-IFRS Measures"

Extract from Statement of Financial Position at:

	June 30, 2021	Dec 31, 2020
Current assets	**37,861,796**	25,336,787
Non-current assets	**35,821,202**	49,194,591
Total assets	**$ 73,682,998**	$ 74,531,378
Current liabilities	**9,488,180**	11,539,208
Non-current liabilities	**4,930,807**	3,569,064
Total liabilities	**$ 14,418,987**	$ 15,108,272
Shareholders' equity	**$ 59,264,011**	$ 59,423,106

RESULTS OF OPERATIONS

Revenues

PyroGenesis recorded revenue of $8,280,572 in the second quarter of 2021 ("Q2, 2021"), representing an increase of 289% compared with $2,128,454 recorded in the second quarter of 2020 ("Q2, 2020"), Revenue for the six months of fiscal 2021 was $14,545,075 an increase of 411% over revenue of $2,847,362 during the same period in 2020.

Revenues recorded in the three and six months ended June 30, 2021, were generated from:

(i) DROSRITE™ related sales of $1,648,882, $4,389,606 (2020 Q2 - $1,319,904, $1,794,336)
(ii) PUREVAP™ related sales of $3,896,453, $4,521,539 (2020 Q2 - $25,093, $43,058)
(iii) torch related sales of $557,613, $752,835 (2020 - $617,077, $705,022)
(iv) support services related to PAWDS-Marine systems supplied to the US Navy $2,133,187, $4,719,208 (2020 - $37,143, $61,039)
(v) other sales and services of $44,437, $161,887 (2020 - $129,237, $243,907)

As at August 16, 2021, revenue expected to be recognized in the future related to performance obligations that are unsatisfied (or partially satisfied) at the reporting date is $32,065,109. Revenue will be recognized as the Company satisfies its performance obligations under long-term contracts, which is expected to occur over the next 3 years.

Cost of Sales and Services

	Three months ended June 30, 2021	2020	% Change 2021 vs 2020	Six months ended June 30, 2021	2020	% Change 2021 vs 2020
Employee compensation	**$ 544,725**	$ 103,957	424%	**$ 1,131,868**	$ 376,884	200%
Subcontracting	**38,241**	188,949	-80%	**600,498**	189,474	217%
Direct materials	**2,547,913**	528,584	382%	**5,366,323**	589,641	810%
Manufacturing overhead & other	**246,770**	95,667	158%	**455,207**	152,464	199%
Foreign exchange charge on materials	**(1,022)**	(43,350)	-98%	**(61,373)**	30,655	300%
Investment tax credits	**(36,315)**	(18,758)	94%	**(37,498)**	(39,388)	-5%
Cost of Sales and Services before Amortization of Intangible Assets	**$ 3,340,312**	$ 855,049	291%	**$ 7,455,025**	1,299,730	474%
Amortization of intangible assets	**6,779**	6,813	-1%	**13,559**	13,626	0%
Total Cost of Sales and Services	**$ 3,347,091**	$ 861,862	288%	**$ 7,468,584**	$ 1,313,356	469%

Gross Margin

	Three months ended June 30, 2021	2020	Six months ended June 30, 2021	2020
Revenues	$ 8,280,572	$ 2,128,454	$ 14,545,075	$ 2,847,362
Cost of Sales and Services	3,347,091	861,862	7,468,584	1,313,356
Gross Margin	$ 4,933,481	$ 1,266,592	$ 7,076,491	$ 1,534,006
Gross Margin %	59.6%	59.5%	48.7%	53.9%

Cost of sales and services before amortization of intangible assets is not a performance measure defined under IFRS and it is not considered an alternative to gross margin in the context of measuring the Company's performance. Management believes that providing certain non-GAAP 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. Gross margin before amortization of intangible assets is an important measure of operating performance because it allows management, investors and others to evaluate and compare the Company's core operating results, including its return on capital and operating efficiencies, from period to period, by removing the impact of non-operating items not requiring cash outlays. Securities regulations require that companies caution readers that earnings and other measures adjusted to a basis other than IFRS do not have standardized meanings and are unlikely to be comparable to similar measures used by other companies. Accordingly, they should not be considered in isolation or a substitute for financial measures prepared in accordance with IFRS.

Cost of sales and services before amortization of intangible assets was $3,340,312 in Q2 2021, representing an increase of 291% compared with $855,049 in Q2 2020, primarily due to an increase in employee compensation $544,725 (Q2 2020 - $103,957), direct materials $2,547,913 (Q2 2020 - $528,584) and manufacturing overhead and other $246,770 (Q2 2020 - $95,667).

In Q2 2021, subcontracting, and foreign exchange charge on materials decreased to $37,219 (Q2 2020 - $145,599). The gross margin for Q2 2021 was $4,933,481 or 59.6% of revenue compared to a gross margin of $1,266,592 or 59.5% of revenue for Q2 2020. As a result of the type of contracts being executed, the nature of the project activity, as well as the composition of the cost of sales and services, as the mix between labour, materials and subcontracts may be significantly different.

Investment tax credits related to qualifying projects from the provincial government against cost of sales were $36,315 (2020 - $18,758) and $Nil (2020 $1,058,017) of investment tax credits earned in prior years that met the criteria for recognition. The Company also recorded for the six months ended June 30, 2021 $37,498 (2020 - $18,420) of the investment tax credits against cost of sales and services, $23,880 (2020 - $1,141,468) against research and development expenses and $15,979 (2020 - $30,000) against selling general and administrative expenses.

The amortization of intangible assets of $6,779 in Q2 2021 and $6,813 for Q2 2020 relates to patents and deferred development costs. Of note, these expenses are non-cash items and will be amortized over the duration of the patent lives.

Selling, General and Administrative Expenses

	Three months ended June 30, 2021	2020	% Change 2021 vs 2020	Six months ended June 30, 2021	2020	% Change 2021 vs 2020
Employee compensation	$ 1,291,580	$ 1,087,226	19%	$ 2,508,052	$ 1,986,802	26%
Professional fees	918,964	348,221	164%	1,908,171	400,143	377%
Office and general	106,921	81,798	31%	265,674	156,518	70%
Travel	5,727	26,781	-79%	13,142	68,397	-81%
Depreciation on property and equipment	84,061	10,057	736%	160,378	20,113	697%
Depreciation rou assets	149,217	88,205	69%	251,011	177,570	41%
Investment tax credits	(8,479)	(32,105)	-74%	(15,979)	(39,605)	-60%
Government grants	(17,234)	(34,228)	-50%	(17,234)	(46,728)	-63%
Other expenses	841,131	65,383	1,186%	1,101,769	123,853	790%
Sub-total not including share-based expenses	$ 3,371,888	$ 1,641,338	105%	$ 6,174,984	$ 2,847,063	117%
Share-based expenses	3,288,685	23,638	13,813%	4,211,025	94,504	4,356%
Total selling, general and administrative	$ 6,660,573	$ 1,664,976	300%	$ 10,386,009	$ 2,941,567	253%

Included within Selling, General and Administrative expenses ("SG&A") are costs associated with corporate administration, business development, project proposals, operations administration, investor relations and employee training.

SG&A expenses for Q2 2021 excluding the costs associated with share-based compensation (a non-cash item in which options vest principally over a four-year period), were $3,371,888 representing an increase of 105% compared with $1,641,338 reported for Q2 2020. On a year-to-date basis, SG&A expenses before share-based expenses were $6,174,984 compared with $2,847,063 in the same period in 2020.

The increase in SG&A expenses in Q2 2021 over the same period in 2020 is mainly attributable to the net effect of:

i) an increase of 19% in employee compensation due primarily to additional head count,
ii) an increase of 164% for professional fees, primarily due to an increase in accounting fees, legal fees, and listing fees.
iii) an increase of 31% in office and general expenses, is due to an increase in office and computer related expenses,
iv) travel costs decreased by 79%, due to a decrease in travel abroad,
v) depreciation on property and equipment increased by 736% due to higher amounts of property and equipment being depreciated,
vi) depreciation on right of use assets increased by 69% due to higher amounts of right of use assets being depreciated,
vii) Investment tax credits decreased by 74% due to a decrease in qualifying projects,
viii) government grants decreased by 50% due to lower levels of activities supported by such grants,
ix) other expenses increased by 1,186%, primarily due to an increase in D&O insurance expenses.

Separately, share based payments increased by 13,813% in Q2 2021 over the same period in 2020 as a result of the stock options granted in 2020 and 2021. This was directly impacted by the vesting structure of the stock option plan with options vesting between 25% and 100% on the grant date requiring an immediate recognition of that cost.

Depreciation on Property and Equipment

	Three months ended June 30, 2021	2020	% Change 2021vs2020	Six months ended June 30, 2021	2020	% Change 2021vs2020
Depreciation on property and equipment	**$ 84,061**	$ 10,057	736%	**$ 160,378**	$ 20,113	697%

The depreciation on property and equipment increased to $84,061 in Q2 2021, compared with $10,057 in Q2 2020. The 736% increase is primarily due to higher amounts of property and equipment acquired in 2021 being depreciated.

Research and Development ("R&D") Costs

	Three months ended June 30, 2021	2020	% Change 2021vs2020	Six months ended June 30, 2021	2020	% Change 2021vs2020
Employee compensation	$ 213,209	$ 31,153	584%	$ 381,156	$ 279,817	36%
Investment tax credits	(5,913)	8,926	-166%	(23,880)	(33,227)	-28%
Subcontracting	43,701	740	5,802%	86,291	12,315	601%
Materials and equipment	463,509	21,999	2,007%	581,640	32,577	1,685%
Other expenses	66,559	1,885	3,430%	101,344	2,444	4,047%
Sub-total before government grants	$ 781,065	$ 64,703	1,107%	$ 1,126,551	$ 293,926	283%
Government grants	(70,331)	(68,570)	3%	(129,510)	(274,705)	-53%
Total net R&D costs	$ 710,734	$ (3,867)	18,479%	$ 997,041	$ 19,221	5,087%

The Company incurred $710,734 of R&D costs, net of government grants, on internal projects in Q2 2021, an increase of 18,479% as compared with ($3,867) in Q2 2020. The increase in Q2 2020 is primarily related to an increase in employee compensation, subcontracting, materials and equipment and other expenses, $786,978 compared with $55,777 reported in Q2 2020. During the first six months of fiscal 2021, net spending on internal R&D was 997,041 as compared to $19,221 in 2020, primarily due to an increase in R&D activities performed in the six months ending June 30, 2021.

In addition to internally funded R&D projects, the Company also incurred R&D expenditures during the execution of client funded projects. These expenses are eligible for Scientific Research and experimental Development ("SR&ED") tax credits. SR&ED tax credits on client funded projects are applied against cost of sales and services (see "Cost of Sales" above).

Net Finance Costs

	Three months ended June 30, 2021	2020	% Change 2021vs2020	Six months ended June 30, 2021	2020	% Change 2021vs2020
Interest on convertible debentures	$ -	$ 68,832	-100%	$ -	$ 143,952	-100%
interest accretion of convertible debentures	-	123,538	-100%	-	167,633	-100%
interest on term loans	2,988	15,944	-81%	9,438	50,909	-81%
interest on lease liabilities	90,947	62,689	45%	136,928	125,924	9%
interest accretion on promissory notes	-	4,401	-100%	-	18,859	-100%
Accretion of royality receivable	(64,329)	-	100%	(64,329)	-	100%
Other interest expenses	10,480	1,524	588%	11,135	2,388	366%
Net finance costs	$ 40,086	$ 276,928	-86%	$ 93,172	$ 509,665	-82%

Finance costs for Q2 2021 totaled $40,086 as compared with $276,928 for Q2 2020, representing a decrease of 86% year-over-year. The decrease in finance costs in Q2 2020, is primarily attributable to lower interest and accretion on lower amounts of debt.

Strategic Investments

	Three months ended June 30, 2021	2020	% Change 2021vs2020	Six months ended June 30, 2021	2020	% Change 2021vs2020
Changes to the fair value of strategic investments	$ (17,884,293)	$ 5,899,465	-403%	$ (12,249,571)	$ 5,407,441	-327%

The adjustment to the fair market value of strategic investments for Q2 2021 resulted in a loss of $17,884,293 compared to a gain in the amount of $5,899,465 in Q2 2020. The decrease is primarily attributable to the decreased market share value of common shares and warrants owned by the Company of HPQ Silicon Resources Inc.

Net (loss) income and Comprehensive (loss) Income

	Three months ended June 30, 2021	2020	% Change 2021 vs 2020	Six months ended June 30, 2021	2020	% Change 2021 vs 2020
Net (loss) income and comprehensive (loss) income	**$ (20,362,205)**	$ 5,228,020	-489%	**$ (16,649,302)**	$ 3,470,995	-580%

The net comprehensive loss for Q2 2021 of $20,362,205 compared to a gain of $5,228,020, in Q2 2020, represents a decrease of 489% year-over-year. The decrease in income of $25,590,226 in the comprehensive loss in Q2 2021 is primarily attributable to the factors described above, which have been summarized as follows:

(i) an increase in product and service-related revenue of $6,152,118 arising in Q2 2021,
(ii) an increase in cost of sales and services of $2,485,231, primarily due to an increase in employee compensation, direct materials, manufacturing overhead & other, investment tax credits and a decrease in subcontracting, foreign exchange charge on materials, and amortization of intangible assets,
(iii) an increase in SG&A expenses of $1,730,552 arising in Q2 2021 primarily due to an increase in employee compensation, professional fees, office and general, depreciation in property and equipment, depreciation ROU assets, other expenses and share based expenses, and a decrease in travel, investment tax credits and government grants, an increase in R&D expenses of $714,601 primarily due to an increase in employee compensation, subcontracting, material and equipment, other expenses and government grants and a decrease in investment tax credits.
(iv) a decrease in net finance costs of $236,841 in Q2 2021 primarily due to lower interest and accretion on lower amounts of debt and an increase of $64,329 in accretion of royalty receivable,
(v) a decrease in fair value adjustment of strategic investments of $23,546,916 in Q2 2021.

Reconciliation of Non-IFRS measures (EBITDA, Adjusted and Modified)

	Three months ended June 30, 2021	2020	% Change 2021 vs 2020	Six months ended June 30, 2021	2020	% Change 2021 vs 2020
Net loss (income) and comprehensive (loss) income	**$ (20,362,205)**	$ 5,228,020	-489%	**$ (16,649,302)**	$ 3,470,995	-580%
Depreciation on property and equipment	**84,061**	10,057	736%	**160,378**	20,113	697%
Depreciation rou assets	**149,217**	88,205	69%	**251,011**	177,570	41%
Amortization of intangible assets	**6,779**	6,813	-1%	**13,559**	13,626	0%
Financing charges	**40,085**	276,928	-86%	**93,172**	$ 509,665	-82%
EBITDA (L)	**$ (20,082,063)**	$ 5,610,023	-458%	**$ (16,131,182)**	$ 4,191,969	-485%
Other non-cash items:						
Share-based payments	**3,288,685**	23,638	13,813%	**4,211,025**	94,504	4,356%
Adjusted EBITDA (L)	**$ (16,793,378)**	$ 5,633,661	-398%	**$ (11,920,157)**	4,286,473	-378%
Change in fair value of investments	**17,884,293**	(5,899,465)	-403%	**12,249,571**	(5,407,441)	-327%
Modified EBITDA[1]	**$ 1,090,915**	$ (265,804)	510%	**$ 329,416**	$ (1,120,968)	129%

[1] See "Non-IFRS Measures"

The EBITDA loss in Q2 2021 was $20,082,063 compared with an EBITDA gain of $5,610,023 for Q2 2020, representing a decrease of 458% year-over-year. The $25,692,086 decrease in the EBITDA loss in Q2 2021 compared with Q2 2020 is due to the decrease in comprehensive income of $25,590,225, an increase in depreciation on property and equipment of $74,004, an increase in depreciation ROU assets of $61,013, offset by a decrease in amortization of intangible assets of $34 and a decrease in finance charges of $236,843.

Adjusted EBITDA loss in Q2 2021 was $16,793,378 compared with an Adjusted EBITDA gain of $5,633,661 for Q2 2020. The decrease of $22,427,039 in the Adjusted EBITDA loss in Q2 2021 is attributable to a decrease in EBITDA loss of $25,692,086 and by an increase of $3,265,047 in share-based payments.

The Modified EBITDA gain in Q2 2021 was $1,090,915 compared with a Modified EBITDA loss of $265,804 for Q2 2020, representing an increase of 510%. The increase of $1,356,719 in the Modified EBITDA gain in Q2 2021 is attributable to the decrease as mentioned above in the Adjusted EBITDA of $22,427,039 and a decrease in the change of fair value of strategic investments of $23,783,758.

SUMMARY OF QUARTERLY RESULTS

	2021		2020				2019	
	Q2	Q1	Q4	Q3	Q2	Q1	Q4	Q3
Revenues	**$ 8,280,572**	**$ 6,264,503**	$ 6,778,240	$ 8,149,427	$ 2,128,454	$ 718,908	$ 1,066,329	$ 2,097,437
Gross margin	**4,933,481**	**2,143,010**	3,236,136	5,532,526	1,266,592	267,414	88,982	947,090
Gross margin %	**59.6%**	**34.2%**	47.7%	67.9%	59.5%	37.2%	8.3%	45.2%
Comprehensive income	**(20,362,205)**	**3,712,903**	22,971,415	15,325,997	5,228,020	(1,757,027)	(5,073,771)	(965,031)
Earnings (loss) per share								
Basic	**(0.12)**	**0.02**	0.15	0.10	0.04	(0.01)	(0.04)	(0.01)
Diluted	**(0.11)**	**0.02**	0.15	0.09	0.03	(0.01)	(0.04)	(0.01)

The majority of PyroGenesis' revenue is recognised from long-term contracts over time and is dependent on the timing of project initiation and execution, including project engineering, manufacturing, and testing. In Q1 2020 the Company has adopted IFRS 15 dealing with revenue from contracts with customers.

LIQUIDITY AND CAPITAL RESOURCES

As at June 30, 2021, the Company has cash and cash equivalents of $18,076,539. In addition, the accounts payable and accrued liabilities of $4,206,974 are payable within 12 months. The Company expects that its cash position will be able to finance its operations for the foreseeable future.

	Carrying value	Total contractual amount	Less than 1 year	2-3 years	4-5 years	Over 5 years
	$	$	$	$	$	$
Accounts payable and accrued liabilities	4,206,974	4,206,974	4,206,974	-	-	-
Term loans	112,574	190,630	14,389	50,595	62,823	62,823
Lease liabilities	5,028,383	6,412,948	508,977	2,998,925	216,985	2,688,061
	9,347,931	10,810,552	4,730,340	3,049,520	279,808	2,750,884

SUMMARY OF CASH FLOWS

	Three months ended June 30,		Six months ended June 30,	
	2021	2020	**2021**	2020
Cash provided by (used in) operating activities	**$ (7,282,330)**	$ (1,019,546)	**$ (13,917,452)**	$ (752,478)
Cash provided by (used in) investing activities	**(5,000,280)**	(174,281)	**1,848,594**	(183,831)
Cash provided by (used in) financing activities	**4,084,805**	1,622,188	**12,040,498**	2,469,655
Increase (decrease) in cash	**(8,197,805)**	428,361	**(28,360)**	1,533,346
Cash - end of period	**18,076,539**	1,567,777	**18,076,539**	1,567,777

During the three months ended June 30, 2021, cash flows used by operating activities was $13,917,452 compared to cash flows generated of ($752,478) for the same period in the prior year.

The use of cash during Q2, 2021 consists of the comprehensive loss of $16,649,302 (2020 – comprehensive income of ($3,470,992) less adjustments for operating activities of $21,624,325 (2020 – decrease of $5,493,824), plus a net negative change in non-cash operating working capital items of $7,282,330 (2020 – negative change of $753,741).

Investing activities resulted in a cash generated of $1,848,594 in 2021, compared to a use of cash of $183,831 in 2020 mainly resulting from the disposal of strategic investments offset by the purchase of property and equipment and intangible assets totaling $1,292,040.

Financing activities in 2021 generated funds of $12,040,498, compared to $2,469,655 in 2020. In Q2, 2021, the Company issued shares upon the exercise of stock options and warrants for net proceeds of $5,425,681 ($13,489,642 – 2021), repurchase shares for cancellation for an amount of $1,210,459 (compare to $964,391 in 2020) and made payment of leases liabilities of $28,990 ($81,051 – 2021). During the same period in the prior year, the Company repaid a portion of the convertible debenture of $358,500, made payment of lease liabilities of $68,272 and received proceeds from the issuance of a convertible loan and shares for a total amount of $4,063,669. Interest paid was $101,427 in Q2 2021 ($151,636 – 2021) compared to $168,536 in Q2 2020.

The net cash position of the Company decreased by $8,197,805 for Q2, 2021 compared to a net increase of $428,361 for Q2, 2020.

CAPITAL STOCK INFORMATION

The authorized share capital of the Company consists of an unlimited number of Common shares (the "Common Shares"). As at August 16, 2021 PyroGenesis had 167,761,705 on shares, 9,405,500 outstanding stock options issued, and 7,823,000 exercisable options issued.

GOING CONCERN

The Company presumes it will be able to realize its assets and discharge its liabilities in the normal course of business for the foreseeable future. The Company's management has reviewed the Company's projected cash flow and backlog and is of the opinion that the Company has sufficient cash and cash equivalents and will generate sufficient positive cash flows and profits from operations and strategic investments to meet current and future cash requirements. Management expects that the investments currently being made in accelerating projects under development for various clients, together with executing on its $32,065,109 backlog at August 16, 2021 (173% of 2020 revenues) which is primarily related to the Company's successful diversification into niche markets of the additive manufacturing (including 3D printing), and metals & mining industries, will continue to improve the Company's cash position.

The 2020 Financial Statements have been prepared using IFRS as issued by the IASB applicable to a going concern, which contemplates the realization of assets and settlement of liabilities in the normal course of business as they become due. If the going concern assumption were not appropriate for these financial statements then adjustments would be necessary to the carrying value of assets and liabilities, the reported expenses and the statements of financial position classifications used. The impact on the financial statements could be material.

RELATED PARTY TRANSACTIONS

During the three and six months ended June 30, 2021, the Company concluded the following transactions with related parties:

The Company entered into a lease agreement for rent of a property with a trust whose beneficiary is the controlling shareholder and CEO of the Company. As at June 30, 2021 the carrying amount of the right-of-use asset and lease liabilities are $1,217,844 and $110,117, respectively (2020 - $3,701,000 and $2,988,542).

An amount of $68,825 and $137,284 was charged by a trust whose beneficiary is the controlling shareholder and CEO for rent and property taxes (2020 - $68,686 and $136,733 of rent and property taxes).

A balance due to the controlling shareholder and CEO of the Company amounted to $71,380 (2020 - $72,188) for expense report, salary and vacation payables and is included in accounts payable and accrued liabilities as at June 30, 2021.

An amount of $Nil (Q2, 2020 - $4,413), of interest payable and $Nil (2020 - $17,937) of accretion were accrued on a convertible loan of $295,000 from the controlling shareholder and CEO of the Company. A balance due of $Nil is included in accounts payable and accrued liabilities.

An amount of $Nil (Q2, 2020 - $30,960), of interest payable were accrued on a convertible loan of $903,000 from a trust whose beneficiary is the controlling shareholder and CEO of the Company and are included in accounts payable and accrued liabilities.

The key management personnel of the Company are the members of the Board of Directors and certain officers. Total compensation to key management consisted of the following:

	Three months ended June 30,		**Six months ended June 30,**	
	2021	2020	**2021**	2020
	$	$	**$**	$
Salaries – officers	**218,656**	117,648	**460,215**	380,318
Pension contributions	**3,971**	3,097	**8,407**	5,866
Fees – Board of Directors	**41,500**	-	**75,000**	44,000
Share – based compensation – officers	**1,312,708**	63,177	**1,792,325**	65,299
Share – based compensation – Board of Directors	**1,539,634**	(43,448)	**1,711,850**	18,793
Other benefits – officers	**43,363**	232,466	**53,352**	237,853
Total compensation	**3,159,832**	372,940	**4,101,149**	752,129

A balance of $88,255 of key management compensation, of the amounts noted above, is included in accounts payable and accrued liabilities as at June 30, 2021 (2020 - $102,625).

CORPORATE HIGHLIGHTS

On April 1, 2021, the Company announced it had appointed DGWA, the German Institute for Asset and Equity Allocation and Valuation ("Deutsche Gesellschaft für Wertpapieranalyse GmbH", "DGWA"), a German investment banking boutique, as its Investor and Corporate Relations advisor in Europe, effective as April 1st, 2021, for a period of twelve (12) months.

On April 19, 2021, the Company announced that its cutting-edge Additive Manufacturing ("AM") NexGen™ Powder production line, incorporating all the improvements previously announced (increased production rate, lower CAPEX, lower OPEX, narrower particle size distribution) was put in place and producing powders. PyroGenesis' game-changing NexGen™ Plasma Atomization System, with its production rate exceeding 25kg/h, has shattered all published plasma-atomized production rates for titanium known to management.

On April 20, 2021, the Company announced the signing of a qualification agreement with a premier global aerospace company for the production of metal powders. Under this Agreement, the Client will perform a standard qualification process typically required before a company can become an approved supplier. The process will, amongst other things, evaluate the Company's manufacturing methods, test samples of powder for batch-to-batch consistency and determine mechanical and chemical properties.

On April 27, 2021, the Company announced that it had signed a binding Letter of Intent ("LOI"), which outlines the terms and conditions pursuant to which PyroGenesis would acquire AirScience Technologies Inc ("AST") for $4.8MM (the "Purchase Price"). The LOI is binding on AST, but it is only binding on PyroGenesis if in its sole opinion, it is satisfied with the final due diligence currently in progress. The option to satisfy the Purchase Price in shares or cash is at the sole discretion of the buyer, and will only be made on, or about, final closing. AST is a Montreal-based company that designs and builds (i) gas upgrading systems (specifically from biogas to renewable natural gas, or "RNG"), (ii) Pyrolysis-Gas Purification, (iii) Coke-Oven Gas ("COG") Purification as well as providing (iv) Biogas & Landfill-Gas Flares and Thermal Oxidizers.

On May 12, 2021, the Company announced that further to its press release dated April 19, 2021, powder test runs for batch-to-batch consistency using its cutting-edge Additive Manufacturing ("AM") NexGen™ powder production line had been completed successfully, and ahead of schedule. The Company is now producing AM metal powders for clients.

On May 13, 2021, the Company announced that further to its press release dated March 3, 2021 (wherein it was disclosed that PyroGenesis almost doubled its manufacturing footprint by leasing an additional 31,632 sq. ft), the Company is pleased to announce the successful installation of approximately $1MM in state-of-the-art plasma torch production equipment in its new facility located in Montreal, Quebec, Canada.

On May 26, 2021, the Company announced, that further to its Press Release dated May 12, 2021, the Company had shipped its first commercial samples of plasma-atomized titanium powder to a client (the "Client"). This Client serves the aerospace industry and will remain confidential for competitive reasons.

On May 27, 2021, the Company announced that is had received a $700,000 grant from Sustainable Development Technology Canada ("SDTC") for a novel production process to transform quartz into fumed silica using a plasma reactor, thereby reducing hazardous waste and greenhouse gas ("GHG") emissions in comparison to the established fumed silica production process. This project is in partnership with HPQ Silicon Resources ("HPQ"), provider of innovative, cost-effective and low carbon emission silicon-based solutions. The proposed start date for SDTC funding is June 2021, subject to execution of the project funding agreement with SDTC.

On June 3, 2021, the Company announced that further to its press release dated November 24, 2020, it had received a request for a cost estimate for thirty-six (36) plasma torches from a major iron ore producer (the "Client"). The Client is a multi-billion-dollar international producer of iron ore pellets, one of the largest in the industry, whose name will not be disclosed for confidentiality reasons, and whose ultimate objective is to reduce greenhouse gases (GHG) by replacing their fossil fuel burners with PyroGenesis' proprietary plasma torches. As previously disclosed, PyroGenesis has the process patent to replace fossil fuel burners with PyroGenesis' clean plasma torches in the iron ore pelletization industry, thereby reducing GHG emissions.

On June 7, 2021, the Company announced that it had received a Letter of Intent (LOI) from an existing client, to purchase three 10-ton DROSRITE™ systems. The contract, if finalized, is expected to be in the range of $10-15 Million. The Client's name shall remain anonymous for competitive and confidential reasons.

SUBSEQUENT EVENTS

On August 12, 2021, the Company acquired 100% of the capital stock of AirScience Technologies Inc ("AST") for a maximum total cash consideration of $4,400,000 pursuant to a letter of intent dated April 27, 2021. The purchase price will be paid upon AST meeting various contract and business-related milestones. AST, a Montreal-based company, offers technologies, equipment, and expertise in the area of biogas upgrading as well as air pollution controls. The Company incurred approximately $91,000 of related acquisition costs in first half of the current fiscal period which are reflected in general and administrative costs in the Consolidated Statement of Operations. As the acquisition of AST closed on August 12, 2021, the initial accounting for the business combination and the purchase price allocation have not yet completed at the time of this filing.

OUTLOOK

PyroGenesis continues to be well positioned, with a clean balance sheet, to execute on all its organic growth strategies as well as to continue actively pursuing growth through synergistic mergers & acquisitions.

The Company has recently focused its offerings to highlight their greenhouse gases ("GHG") emissions reduction benefits. Most of PyroGenesis' product lines do not depend on environmental incentives (tax credits GHG certificates, environmental subsidies, etc.) to be economically viable.

We consider this strategy to be timely as many governments are stimulating their respective economies by promoting and funding both environmental technologies and infrastructure projects. As such, although management expects that this will be a tailwind into an already strong pipeline (which would further increase revenues and add directly to shareholder value), there may be some delays before the full effect is recognized as companies will likely take additional time to submit the necessary government paperwork to qualify for such incentives.

The Company is not immune to the negative impact Covid-19 has had on businesses, specifically related to the work force and, more importantly, the supply chain. Management believes that the Company is better situated than most and is doing everything to mitigate these challenges. It does not expect any improvements from the impact of Covid-19 before Q2 2022.

A. ORGANIC GROWTH

Organic growth will be spurred on by (i) the natural growth of our existing offerings which can now be accelerated given our strong balance sheet and (ii) leveraging off our "Golden Ticket" advantage.

We have described in the past our Golden Ticket advantage as one which occurs when one sells directly, or is engaged directly, with the end user and, as a result, is "inside the fence". A Golden Ticket affords the opportunity to either, (i) cross sell other products or (ii) identify new areas of concern that can be addressed uniquely by PyroGenesis. We call the latter our Coffee and Donuts strategy (if you are selling coffee you could generate additional revenues, with little additional effort, by adding on donuts).

Over the past several years, PyroGenesis has successfully positioned each of its business lines for rapid growth by strategically partnering with multi-billion-dollar entities. These entities have identified PyroGenesis' offerings to be unique, in demand, and of such a commercial nature as to warrant such unique relationships. We expect that these relationships are now positioned to transition into significant revenue streams particularly in iron ore pelletization & DROSRITE™ (short term) and 3D printing (mid to long term).

1. **DROSRITE™**

Within the DROSRITE™ offering, the Company continues to aggressively explore horizontal growth opportunities. The Company is currently bidding on an up-stream opportunity, valued at approximately $40MM. This process is plasma based, and not only reduces GHG, but seems to be cheaper than alternate technologies. This project is located in the Middle East and is currently experiencing delays to allow the processing of government documentation to catch up with the bidding process. Management notes that it has been very successful in the selection process to date and continues to believe that it has a better than average probability of success. Building on this development the Company is also in discussions with a second opportunity to provide a similar upstream process for approximately the same consideration. Both opportunities are examples of the success the Company is having with this strategy.

2. **Additive Manufacturing**

With respect to additive manufacturing, we continue to expect to see significant year over year improvements in our 3D metal powders offering as our NexGen™ facility, which incorporates all the previously disclosed benefits (increased production rates, lower capex, lower opex), is now on-line.

There are major top tier aerospace companies and OEMs, in both Europe and North America, eagerly awaiting powders from this new state-of-the-art production line, and we are currently in the process of supplying sample powders to them for analysis. Of note, a major tier one global aerospace company entered into an agreement with the Company to qualify its powder, at considerable expense to the global aerospace company, with a view towards having the Company become a supplier. The Company expects that such developments will continue and will translate into significant improvements in contributions to revenue by this segment in the mid-long term.

3. **Plasma Torches**

With respect to the Company's plasma torch offerings, we expect this offering to be significantly impacted by continued developments in the iron ore pelletization industry, where serious consideration is being given to replacing the fossil fuel burners, currently being used throughout the industry, with PyroGenesis' proprietary plasma torches, in an effort to reduce their carbon footprint.

To date, everything is proceeding as expected. Initial discussions have evolved into confirmation stages which typically consist of a computer simulation followed by a small torch order. These confirmation stages are expected, if successful, to result with a roll-out program to replace fossil fuel burners with PyroGenesis' plasma torches in the iron ore pelletization industry, in which PyroGenesis is patent protected.

PyroGenesis expects that the previously mentioned government initiatives, geared to stimulating their respective economies by promoting and funding environmental technologies and infrastructure projects, will only serve to increase interest in PyroGenesis' plasma torch offerings. However, this could delay the onset of contracts as potential clients seek government support for large initiatives.

To date, all computer simulations have been successful, and Client A has ordered 1 torch and has requested a cost estimate for 36 more. We expect that in short order a long overdue torch order for between 1-5 torches from Client B will be forthcoming with strong visibility on the next series of torch orders from them. All indications to date are that the iron ore pelletization industry will be a large user of PyroGenesis plasma torches.

PyroGenesis is proactively targeting other industries which are experiencing significant pressure to reduce GHGs, and which utilize fossil fuel burners as well.

Separately, the Company also offers plasma torches to niche markets where there is a high probability of on-going sales from successful implementation. One such example is the previously announced contract with a very small company to produce a plasma torch ideal for tunneling. PyroGenesis has reason to believe that the real plasma-based tunneling opportunity may lie outside of the scope of the current agreement. PyroGenesis is in discussion with the client to determine the best way to terminate this arrangement. For all intents and purposes, from the readers perspective, this project with the client has ended. PyroGenesis is evaluating, and intends to pursue, plasma based tunneling opportunities, specifically those identified to be outside of the scope of the current agreement.

Another niche market where the Company is offering its plasma torch, and where there is a high probability of on-going sales is in land-based waste destruction applications, and more specifically medical waste. The Company is currently in discussions for a small contract to provide plasma torches to destroy medical waste in Southeast Asia. If successful, this could usher in another interesting application of our plasma expertise to a rather large market with an unaddressed need.

As sales of PyroGenesis' plasma torches increase, the Company will also benefit from providing proprietary spare parts from which the Company expects to generate significant recurring revenue, thus complementing the Company's long-term strategy to build upon a recuring revenue model.

4. HPQ/PUREVAP™

With respect to HPQ, the goal is to continue to expand our role as HPQ's technology provider for the game changing family of silicon processes which we are developing exclusively for HPQ and its wholly owned subsidiaries HPQ Nano Silicon Powders Inc and HPQ Silica Polvere Inc., namely:

- The PUREVAP™ "Quartz Reduction Reactors" (QRR), an innovative process (patent pending), which should permit the one step transformation of lower purity quartz (SiO_2) than any traditional processes can handle into a silicon (Si) of a higher purity level (2N-4N) that can be produced by any traditional smelter, at reduced costs, energy input, and carbon footprint. The unique capabilities of this process could position HPQ as a leading provider of the specialized silicon material needed to propagate its considerable renewable energy potential; and

- The PUREVAP™ Nano Silicon Reactor (NSiR), which, if successful, could position itself as a new proprietary low-cost process that can transform the silicon (Si) made by the PUREVAP™ QRR into the nano-silicon materials (silicon powders and silicon nanowires) sought after by energy storage, batteries, electric vehicle manufactures and clean hydrogen sectors participants. The aim of the ongoing work is to position HPQ NANO as the first to market with a commercial scale low-cost nanoparticle production system.

- A new plasma-based process that could convert Silica (Quartz, SiO_2) into fumed silica (Pyrogenic Silica) in one step. This new process could be a low-cost and environmentally friendly option that combines HPQ Silicon High Purity Quartz initiatives with PyroGenesis' industry leading know-how in the development of commercial plasma processes. It is envisioned that the process will eliminate harmful chemicals presently generated by traditional methods. This new process could revolutionize the manufacturing of fumed silica, while repatriating production back to North America.

Government participation in a $5.3MM funding of the fumed silica project confirms our expectation that 2021 should be a year in which significant developments occur on all these fronts.

5. <u>Land Based Units/Environmental</u>

Until this writing, plasma land-based/environmental solutions were not aggressively targeted by the Company in favor of lower-hanging fruit represented by the Company's other offerings, such as iron ore pelletization & DROSRITE™.

The Company took an opportunistic approach to these opportunities and there now seems to be significant early interest in the Company's capabilities in this arena. Besides the interest in niche torch applications mentioned above (ex. medical waste) PyroGenesis' plasma-based solutions have generated interest in processing a waste stream that has recently been classified as hazardous. Management believes that, in a current bidding process, its solution is the technology of choice. If successful, this will represent a significant positioning of PyroGenesis plasma-based solutions not only for this specific product line but, when taken in conjunction with the historic success with its offering on US Aircraft carriers, the land based/environmental segment in general.

B. GROWTH TRHOUGH SYNERGESTIC MERGERS & ACQUISITIONS:

As previously disclosed, the Company is conservatively considering synergistic M&A strategies to augment its growth, and the Company has been very actively involved in pursuing several opportunities in support of this strategy. In so doing, the focus has been on private companies exclusively which (i) primarily leverage the Company's Golden Ticket advantage/Coffee & Donut strategy or (ii) could uniquely benefit from the Company's engineering advantage and/or international relationships.

PyroGenesis recently announced the acquisition of AirScience Technologies Inc. ("AST"), a company with experience in biogas upgrading, for an amended cash purchase price of $4.4MM. PyroGenesis believes that AST's experience in biogas upgrading, combined with PyroGenesis' engineering and multidisciplinary skills, as well as its proven record of meeting the exacting demands of multibillion-dollar companies and the US military, positions the combination well to address the opportunities arising from this growing need to generate renewable natural gas.

The acquisition of AirScience also provides potential synergies with PyroGenesis' land-based waste destruction offerings which, if successful, will significantly increase their value to the market. AST's technology complements PyroGenesis' existing offerings and further strengthens PyroGenesis' position as an emerging leader in GHG solutions for sustainable long-term growth.

Our expectation is to, over the next 12-18 months, strengthen AST's operations and quality control systems, while at the same time increasing the backlog of signed contracts and successfully delivering on existing contracts thus positioning AST as a significant and credible player in the marketplace. Once established, we will evaluate our options to accelerate the rollout of these solutions.

Separately, the Company has been evaluating the following opportunities:

1. **DROSRITE™**

After experiencing some unforeseen last minute contract clarifications/interpretations the Company expects to be able to announce, within the next few weeks, the conclusion of a joint venture relationship with an existing and proven technology provider. The technology is geared to uniquely handle the residues resulting from the processing of dross in the aluminum industry. We had previously announced our intention to secure this technology and, if concluded, would not only make our traditional DROSRITE™ offering more appealing but could also be offered as a stand-alone product. We believe that valorizing the residues and producing high end products will further define us as the go-to company for all dross related processing. This is a prime example of our Coffee & Donuts strategy in play. For further clarity, the joint venture will only relate to the new technology and, as such, PyroGenesis will not have to vet in any assets, or IP (specifically not the DROSRITE™ technology).

2. **Plasma Torches**

PyroGenesis often considers opportunities to leverage its plasma expertise and they continue to review torch technologies which could complement existing offerings and leverage off of their unique relationships. There is nothing currently being discussed that, at this time, has a material probability of being concluded.

CONCLUSION

In conclusion, PyroGenesis is well positioned in 2021 to take advantage of its unique position in its four main business offerings to accelerate growth in each, with a particular emphasis on offerings geared to aggressively reducing GHG emissions. Furthermore, we do not expect at this point in time, given our strong balance sheet, a need to raise capital to execute on our growth strategy over the foreseeable future.

CRITICAL ACCOUNTING ESTIMATES, NEW AND FUTURE ACCOUNTING POLICIES AND FINANCIAL INSTRUMENTS

For a discussion of significant accounting policies, judgements, estimates assumptions and financial instruments, please refer to notes 3, 4 and 26 of the 2020 Financial Statements.

DISCLOSURE CONTROLS AND PROCEDURES

In the years prior to, and most of, 2020, the Company’s shares traded on the TSX Venture Exchange. External audits were conducted in accordance with the criteria for Canadian public companies The Company met all the requirements of the TSX Venture Exchange.

It was recognized by the Company that its listing on the TSX, and subsequently NASDAQ would require more stringent disclosure controls, and started implementing such before the NASDAQ listing. NASDAQ itself recognizes that new listings may require time to upgrade their existing processes and provides a time frame within which such is required to be completed.

The Company is currently in the process of upgrading its disclosure procedures and is on schedule to meet, or better, NASDAQ’s time to complete. Additional details are provided below:

When listed on the TSX Venture, management was not required to assess disclosure controls and procedures (“DC&P”) and internal control over financial reporting (“ICFR”). When the Company graduated to the Toronto Stock Exchange in the last quarter of 2020 and subsequently listed on NASDAQ in the first quarter of 2021, management was required to evaluate both DC&P and IFCR and in the context of the requirements of these more senior exchanges. As an emerging growth company, under NASDAQ rules and the Sarbanes Oxley Act of 2002, compliance with ICFR and DC&P certifications are required to be met by the end of 2022. Management is taking the necessary steps to ensure that those requirements will be met. Canadian certification requirements of IFCR and DC&P are discussed below.

In accordance with National Instrument 52-109 - Certification of Disclosure in Issuers’ Annual and Interim Filings (“NI 52-109”), the Company has filed an interim certificate Form 52-109F2. Paragraph 5.2 “material weakness relating to design” of the certificate requires management to identify and disclose in the MD&A any material weakness in design of ICFR and DC&P. The following material weaknesses existed as at December 31, 2020 and still existed as at June 30, 2021 and are being addressed:

- Control environment: The Company did not maintain an effective control environment and has identified deficiencies relating to: (i) appropriate organizational structure, reporting lines, and authority and responsibilities, including our Board of Directors’ and Audit Committee’s oversight and governance of external financial reporting and related party transactions, (ii) lack of senior financial reporting resources to deal with complex accounting matters and perform management review controls over period-end financial statements. The Company did not have a sufficient number of trained resources with the appropriate skills and knowledge with assigned responsibilities and accountability for the design and operation of internal controls over financial reporting; and (iii) holding individuals accountable for their internal control related responsibilities.

- Control activities: The Company did not fully design and implement effective control activities and has identified deficiencies relating to: (i) selecting and developing control activities that contribute to the mitigation of risks to acceptable levels, and (ii) deploying control activities through policies that establish what is expected and procedures that put policies into action. For example, control activities related to documentation and consistency in accounting for intangible assets internally generated and revenue recognition were deficient.

- Journal Entries: The Company did not effectively design and maintain appropriate segregation of duties and controls over the effective preparation, review and approval, and associated documentation of journal entries, across its ERP platform. The Company did not have adequate review procedures for the recording of manual entries

- Complex Spreadsheet Controls: The Company did not implement and maintain effective controls surrounding certain complex spreadsheets, including addressing all identified risks associated with manual data entry, completeness of data entry, and the accuracy of mathematical formulas, impacting complex spreadsheets used in fixed asset continuity schedules, production and revenue forecasting, and the calculation of the fair value of investments

- User Assess Controls: The Company did not maintain effective user access controls to adequately restrict user access to financial applications and related data commensurate with job responsibilities. Management did not perform appropriate user access reviews, including superuser access.

As a consequence, the Company did not have effective control activities related to the design, implementation and operation of process-level and management review control activities related to order-to-cash (including revenue trade receivables, and billings in excess of cost/cost in excess of billings), procure-to-pay (including operating expenses, prepaid expenses, accounts payable, and accrued liabilities), hire-to-pay (including compensation expense and accrued liabilities), long-lived assets, significant unusual transactions, related party transactions and other financial reporting processes.

These control deficiencies create a reasonable possibility that a material misstatement to the consolidated financial statements will not be prevented or detected on a timely basis. Therefore, the Company's principal executive officer and chief financial officer concluded that the design and operation of the Company's ICFR and DC&P are not effective as of June 30, 2021.

Management's Remediation Plan

Since December 31, 2020, management has taken action toward implementing the remediation plan noted below. Management has performed an initial risk assessment using a top-down, risk-based approach with respect to the risks of material misstatement of the consolidated financial statements. In addition, compensating controls have been applied to the areas where the risks of material misstatement are considered moderate to high. The Company is using and plans to continue to use outside resources to strengthen the business process documentation and help with management's self-assessment and testing of internal controls.

Management, with oversight of the Audit Committee, intends to implement remediation plans for the aforementioned material weaknesses in ICFR and DC&P as follows:

- Establish an appropriate organizational structure and policies that the Board of Directors and Audit Committee will enforce to ensure proper oversight and governance of the external financial reporting process and related party transactions.

- Hire, train, and retain individuals with appropriate skills and experience, assign responsibilities and hold individuals accountable for their roles related to internal control over financial reporting.

- Design and implement a risk assessment process to identify and assess risks of material misstatement and ensure that the impacted financial reporting processes and related internal controls are properly designed and in place to respond to those risks in our financial reporting; and

- Enhance the design of existing control activities and implement additional process-level control activities (including controls over the order-to-cash, procure-to-pay, hire-to-pay, long-lived assets, inventory, significant unusual transactions, related party transactions and other financial reporting processes) and ensure they are properly evidenced and operating effectively.

Although management cannot give absolute assurance that these actions will remediate these material weaknesses in internal controls or that additional material weaknesses in our ICFR will not be identified in the future, management believes the foregoing efforts will, when implemented, strengthen our ICFR and DC&P and effectively remediate the identified material weakness. Management will take additional remedial actions as necessary as they continue to evaluate and work to improve the Company's ICFR environment.

RISK FACTORS

The Company has identified below certain significant risks relating to the business of the Company and the industry in which it operates. The following information is only a summary of certain risk factors and is qualified in its entirety by reference to, and must be read in conjunction with, the detailed information appearing elsewhere in this MD&A. These risks and uncertainties are not the only ones facing the Company. Additional risks and uncertainties not currently known to the Company, or that the Company currently considers immaterial, may also impair the operations of the Company. If any such risks materialize into actual events or circumstances, the Company's assets, liabilities, financial condition, results of operations (including future results of operations), business and business prospects, are likely to be materially and adversely affected. There is no assurance that risk management steps taken will avoid future loss due to the uncertainties described below or other unforeseen risks. An investment in the Common Shares or other securities of the Company is highly speculative and involves a high degree of risk. Before making any investment decision, prospective investors should carefully consider all the information contained in this document including, in particular, the risk factors described below.

Certain factors may have a material adverse effect on the Company's business, financial condition and results of operations. Current and prospective investors should carefully consider the risks and uncertainties and other information contained in this MD&A, the 2020 Financial Statements and the Annual Information Form, particularly under the heading "Risk Factors" in the Annual Information Form, and in other filings that the Company has made and may make in the future with applicable securities authorities, Company's website at www.pyrogenesis.com. The risks and uncertainties described herein and therein are not the only ones the Company may face. Additional risks and uncertainties that the Company is unaware of, or that the Company currently believes are not material, may also become important factors that could adversely affect the Company's business. If any of such risks actually occur, the Company's business, financial condition, results of operations, and future prospects could be materially and adversely affected. In that event, the trading price of the Common Shares (or the value of any other securities of the Company) could decline, and the Company's securityholders could lose part or all of their investment.

Risks Related to the Company's Business and Industry

Operating Income (Loss) and Negative Operating Cash Flow

Prior to December 31, 2020, the Company had a history of losses and negative cash flows. For the year ended December 31, 2020, the Company has net earnings of $41,768,404, cash flows used in operations of $814,987, and an accumulated deficit of $19,007,273 at December 31, 2020. To the extent that the Company has net losses and negative operating cash flow in future periods, it may need to allocate a portion of its cash reserves to fund such negative cash flow. The Company may also be required to raise additional funds through the issuance of equity or debt securities. There can be no assurance that the Company will be able to generate a positive cash flow from its operations, that additional capital or other types of financing will be available when needed or that these financings will be on terms favourable to the Company.

The Company's ability to continue as a going concern is dependent upon its ability in the future to grow its revenue, achieve profitable operations, successfully developing and introducing new products and, in the meantime, to obtain the necessary financing to meet its obligations and repay its liabilities when they become due. While the Company has been successful in securing financing in the past, raising additional funds is dependent on a number of factors outside the Company's control, and as such there is no assurance that it will be able to do so in the future. External financing, predominantly by the issuance of equity and debt, might be, sought to finance the operations of the Company; however, there can be no certainty that such funds will be available at terms acceptable to the Company, or at all. If the Company is unable to obtain sufficient additional financing, it may have to curtail operations and development activities, any of which could harm the business, financial condition and results of operations.

Actual Financial Position and Results of Operations May Differ Materially from the Expectations of the Company's Management

The Company's actual financial position and results of operations may differ materially from management's expectations. The Company has experienced some changes in its operating plans and certain delays in the timing of its plans. As a result, the Company's revenue, net income and cash flow may differ materially from the Company's projected revenue, net income and cash flow. The process for estimating the Company's revenue, net income and cash flow requires the use of judgment in determining the appropriate assumptions and estimates. These estimates and assumptions may be revised as additional information becomes available and as additional analyses are performed. In addition, the assumptions used in planning may not prove to be accurate, and other factors may affect the Company's financial condition or results of operations.

Revenue Risks

PyroGenesis may experience delays in achieving revenues, particularly with plasma gasification projects which have a long sales cycle. Revenues may be delayed or negatively impacted by issues encountered by the Company or its clients including:

(i) unforeseen engineering and/or environmental problems;

(ii) delays or inability to obtain required financing, licenses, permits and/or regulatory approvals;

(iii) supply interruptions and/or labour disputes;

(iv) foreign exchange fluctuations and/or collection risk; and

(v) competition from other suppliers and/or alternative energy solutions that are less capital intensive.

There is no assurance that the business will perform as expected or that returns from the business will support the expenditures needed to develop it.

Concentration Risk

To date, a small number of customers have accounted for a majority of PyroGenesis' revenues. As its business expands, the Company expects that revenue distribution will be over a larger number of different customers. For the three months ending June 30, 2021, sales of PyroGenesis to its three principal customers accounted for approximately 91% of its total revenue. For the three months ending June 30, 2020, sales to two principal customers accounted for approximately 92% of PyroGenesis' total revenue. The loss of, or a reduction in, purchase orders or anticipated purchase orders from PyroGenesis' principal customers could have a material adverse effect on its business, financial condition and results of operations. Additionally, if one of PyroGenesis' customers is unable to meet its commitments to PyroGenesis, the Company's business, financial condition and results of operations could be adversely affected.

As a result of the Drosrite International Exclusive Agreement and the Dross Processing Service Agreement, the Company generates significant revenues from payments made to Drosrite International under the Dross Processsing Service Agreement. The Company will no longer receive payments under such arrangement if the Dross Processing Service Agreement, which involves a third party in a foreign jurisdiction, is terminated, which could have a material adverse effect on the business, financial condition and results of operations of the Company.

Technology Development and Manufacturing Capability Risks

PyroGenesis recently expanded into new areas of business and, as a result, many of the Company's products are at various stages of the development cycle. The Company may be unable to commercialise such products, or it may be unable to manufacture such products in a commercially viable manner. Whilst management is confident in both its technology and in its team of experienced engineers, scientists and technicians, it cannot know with certainty, which of its products will be commercialised, when such products will be commercialised, or whether such products will be able to be manufactured and distributed profitably.

Product Revenues/History of Losses

PyroGenesis has incurred losses in the majority of years since its inception. In the past the Company's operations have not generated sufficient earnings and cash flows to date to result in consistent profitability or positive cash flow. For the six months ending June 30, 2021 the Company has net losses of $16,649,302, which includes a loss from the change in value of strategic investment of $12,249,571 and cash flows used in operations of $13,917,452. There can be no assurance that the Company will be able to continue to generate significant gains from the value of its strategic investments in the future.

Additional financing and dilution

PyroGenesis may require additional financing. There can be no assurance that additional financing will be available to the Company when needed, or on terms acceptable to the Company. PyroGenesis' inability to raise financing to support ongoing operations or to fund capital expenditures could limit the Company's growth and may have a material adverse effect upon the Company.

The Company does not exclude raising additional funds by equity financing. In addition, as at June 30, 2021, 9,405,500 stock options are currently issued and outstanding. The exercise of stock options and/or warrants, as well as any new equity financings, represents dilution factors for present and future shareholders.

Reliance on Third Party Suppliers, Service Providers, Distributors and Manufacturers

The Company's direct and indirect suppliers, service providers, distributors and manufacturers may elect, at any time, to breach or otherwise cease to participate in supply, service, distribution or manufacturing agreements, or other relationships, on which the Company's operations rely. Loss of its suppliers, service providers, distributors and manufacturers could have a material adverse effect on the Company's business and operational results. Further, any disruption in the manufacturing process done by third party manufacturers could have a material adverse effect on the business, financial condition and results of operations of the Company. The Company cannot ensure that alternative production capacity would be available in the event of a disruption, or if it would be available, it could be obtained on favorable terms.

Manufacturing Facility

The vast majority of the Company's products are manufactured in its manufacturing facility located in Montreal, Quebec. Accordingly, the Company is highly dependent on the uninterrupted and efficient operation of its manufacturing facility. If for any reason the Company is required to discontinue production at its facility, it could result in significant delays in production of the Company's products and interruption of the Company's sales as it seeks to resume production. The Company may be unable to resume production on a timely basis. If operations at the facility were to be disrupted as a result of equipment failures, natural disasters, fires, accidents, work stoppages, power outages or other reasons, the Company's business, financial condition and/or results of operations could be materially adversely affected.

Sales Cycle and Fixed Price Contracts

PyroGenesis sales cycle is long and the signing of new contracts is subject to delay, over which the Company has little control. The Company also enters into sales contracts with fixed pricing, which may be impacted by changes over the period of implementation. There is no assurance that delays or problems in fulfilling contracts with clients will not adversely affect the Company's activities, operating results or financial position.

Reliance on Technology

PyroGenesis will depend upon continuous improvements in technology to meet client demands in respect of performance and cost, and to explore additional business opportunities. There can be no assurance that the Company will be successful in its efforts in this regard or that it will have the resources available to meet this demand. Whilst management anticipates that the research and development will allow the Company to explore additional business opportunities, there is no guarantee that such business opportunities will be presented or realized. The commercial advantage of the Company will depend to a significant extent on the intellectual property and proprietary technology of PyroGenesis and the ability of the Company to prevent others from copying such proprietary technologies. PyroGenesis currently relies on intellectual property rights and other contractual or proprietary rights, including (without limitation) copyright, trade secrets, confidential procedures, contractual provisions, licenses and patents, to protect its proprietary technology. PyroGenesis may have to engage in litigation in order to protect its patents or other intellectual property rights, or to determine the validity or scope of the proprietary rights of others. This type of litigation can be expensive and time consuming, regardless of whether or not the Company is successful. PyroGenesis may seek patents or other similar protections in respect of particular technology; however, there can be no assurance that any future patent applications will actually result in issued patents, or that, even if patents are issued, they will be of sufficient scope or strength to provide meaningful protection or any commercial advantage to the Company. Moreover, the process of seeking patent protection can itself be long and expensive. In the meantime, competitors may develop technologies that are similar or superior to PyroGenesis' technology or design around the patents owned by the Company, thereby adversely affecting the Company's competitive advantage in one or more of its areas of business. Despite the efforts of the Company, its intellectual property rights may be invalidated, circumvented, challenged, infringed or required to be licensed to others. It cannot be assured that any steps the Company may take to protect its intellectual property rights and other rights to such proprietary technologies that are central to the Company's operations will prevent misappropriation or infringement of its technology.

Changes to Contracts

PyroGenesis is dependent upon its ability to establish and develop new relationships and to build on existing relationships with current clients. The Company cannot provide assurance that it will be successful in maintaining or advancing its relationships with current clients or procure additional clients. In addition, PyroGenesis cannot provide assurance that its customers and the end users of its products will continue to provide the Company with business, or that existing customers and end users will not seek to renegotiate or terminate existing contracts providing for the sale of the Company's products and technology based on circumstances on which the Company is not currently aware. Any termination or amendment of a contract under which the Company derives an important portion of its revenues, including the Drosrite International Exclusive Agreement and the Dross Processing Service Agreement, and any adverse change in the relationship of the Company with its customers and end users, will have an adverse effect on the Company's business, financial condition and results of operations.

Sales to governments and governmental entities are subject to specific additional risks, such as delays in funding, termination of contracts or sub-contracts at the convenience of the government, termination, reduction or modification of contracts or sub-contracts in the event of changes in the government's policies or as a result of budgetary constraints and increased or unexpected costs resulting in losses or reduced profits under fixed price contracts.

Foreign Exchange Exposure

PyroGenesis' products and services are increasingly being sold in markets outside of Canada, whilst most of its operating expenses and capital expenditures are denominated in Canadian dollars. As a result, the Company is exposed to fluctuations in the foreign exchange rates between Canadian dollar and the currency in which a particular sale is transacted, which may result in foreign exchange losses that could affect earnings. Foreign sales are predominantly denominated in U.S. dollars. The Company has not to date sought to hedge the risks associated with fluctuations in foreign exchange rates.

Competition

The industry is competitive and PyroGenesis competes with a substantial number of companies which have greater technical and financial resources. There can be no assurance that such competitors will not substantially increase the resources devoted to the development and marketing of products and services that compete with those of the Company or that new or existing competitors will not enter the various markets in which PyroGenesis is active. There can be no assurance that competitors will not develop new and unknown technologies with which the Company may have difficulty competing. Furthermore, failure to remain cost competitive may result in PyroGenesis losing business to its competitors.

The plasma technology of PyroGenesis competes against other plasma and conventional technologies. Without limitation, the demand for the plasma technology of PyroGenesis, particularly in waste destruction and waste-to-energy systems, can be impacted by the commodity prices of the energy source used for the process and the price at which waste is accepted by landfills and traditional waste processing plants. While the Company believes that demand for sustainable waste management practices that have lower environmental impacts than traditional solutions such as landfill or incineration is increasing, the high flows of electricity necessary to operate the waste destruction and waste-to-energy systems of PyroGenesis have an impact on the operational costs of the Company's systems, and traditional solutions may constitute lower-cost solutions, particularly if commodity prices (including of oil and natural gas) remain low or experience a decline.

Management and Key Personnel

PyroGenesis depends on the skills and experience of its management team and other key employees. The Company relies heavily on its ability to attract and retain highly skilled personnel in a competitive environment. PyroGenesis may be unable to recruit, retain, and motivate highly skilled employees in order to assist the Company's business, especially activities that are essential to the success of the Company. Failure to recruit and retain highly-skilled employees may adversely affect PyroGenesis' business, financial condition and results of operations.

Implementation of a strategic plan

PyroGenesis' commercial strategy aims to leverage its products, consumables, and services whilst focusing on the resolution of problems within niche markets within the industries served by the Company. There can be no assurances as to the success of the Company's strategic plan, which should be considered under the risks perspective and difficulties frequently encountered by a developing business.

Adverse Decisions of Sovereign Governments

PyroGenesis conducts an increasing portion of its business internationally. There is no assurance that any sovereign government, including Canada's, will not establish laws or regulations that will not be detrimental to the Company's interests or that, as a foreign corporation, it will continue to have access to the regulatory agencies in other countries. Governments have, from time to time, established foreign exchange controls, which could have a material adverse effect on the Company's business, financial condition and results of operations.

Risks Related to International Operations

A substantial portion of the Company's sales are made to customers and end users outside Canada. The Company conducts its international operations directly or through distributors or other agents or intermediaries, including Drosrite International. The Company plans to continue to expand its international sales and marketing efforts. International operations are subject to a number of inherent risks, and the Company's future results could be adversely affected by a number of factors, including:

- unfavorable political or economic environments; requirements or preferences for domestic products or solutions, which could reduce demand for the Company's products;
- differing existing or future regulatory and certification requirements;
- unexpected legal or regulatory changes;
- greater difficulty in collecting accounts receivable and longer collection periods;
- difficulties in enforcing contracts; an inability to effectively protect intellectual property;
- tariffs and trade barriers, export regulations and other regulatory and contractual limitations on the Company's ability to sell its products; and
- potentially adverse tax consequences, including multiple and possibly overlapping tax structures.

Fluctuations in currency exchange rates could materially adversely affect sales denominated in currencies other than the Canadian dollar and cause a reduction in revenues derived from sales in a particular country. Financial instability in foreign markets could also affect the sale of the Company's products in international jurisdictions. In addition, the Company may be denied access to its end customers as a result of a closing of the borders of the countries in which it its products are sold due to economic, legislative, political and military conditions in such countries.

There can be no assurance that such factors will not materially adversely affect the operations, growth prospects and sales of the Company and, consequently, its results of operations. In addition, revenues the Company earns in other jurisdictions may be subject to taxation by more than one jurisdiction, which could materially adversely affect the Company's earnings. Each of these factors could have an adverse effect on the Company's business, financial condition and results of operations.

Governmental Regulation

PyroGenesis is subject to a variety of federal, provincial, state, local and international laws and regulations relating namely to the environment, health and safety, export controls, currency exchange, labour and employment and taxation. These laws and regulations are complex, change frequently and have tended to become more stringent over time. Failure to comply with these laws and regulations may result in a variety of administrative, civil and criminal enforcement measures, including assessment of monetary penalties, imposition of remedial requirements and issuance of injunctions as to future compliance. The Company may be subject to compliance audits by regulatory authorities in the various countries in which it operates.

Government-funded Defense and Security Programs

Like most companies that supply products and services to governments, government agencies routinely audit and investigate government contractors. These agencies may review the Company's performance under its contracts, business processes, cost structure, and compliance with applicable laws, regulations and standards. The Company's incurred costs for each year are subject to audit by government agencies, which can result in payment demands related to costs they believe should be disallowed. The Company works with governments to assess the merits of claims and where appropriate reserve for amounts disputed. The Company could be required to provide repayments to governments and may have a negative effect on its results of operations. Contrary to cost-reimbursable contracts, some costs may not be reimbursed or allowed under fixed-price contracts, which may have a negative effect on the Company's results of operations if it experiences costs overruns.

Environmental Liability

PyroGenesis is subject to various environmental laws and regulations enacted in the jurisdictions in which it operates, which govern the manufacturing, processing, importation, transportation, handling and disposal of certain materials used in the Company's operations. Management believes that it has adequate procedures in place to address compliance with current environmental laws and regulations. Furthermore, management monitors the Company's practices concerning the handling of environmentally hazardous materials. However, there can be no assurance that the Company's procedures will prevent environmental damage occurring from spills of materials handled by the Company or that such damage has not already occurred. On occasion, substantial liabilities to third parties may be incurred. The Company may have the benefit of insurance maintained by it or the operator, however, the Company may become liable for damages against which it cannot adequately insure or against which it may elect not to insure because of high costs or other reasons. The Company's clients are subject to similar environmental laws and regulations, as well as limits on emissions to the air and discharges into surface and sub-surface waters. While regulatory developments that may follow in subsequent years could have the effect of reducing industry activity, the Company cannot predict the nature of the restrictions that may be imposed. The Company may be required to increase operating expenses or capital expenditures in order to comply with any new restrictions or regulations.

Product Liability and Other Lawsuits

PyroGenesis is subject to a variety of potential product liabilities claims and other lawsuits related with its operations, including liabilities and expenses associated with product defects. The Company maintains product liability and other insurance coverage that management believes is generally in accordance with the market practice in its industry, but there can be no assurance that the Company will always be adequately insured against all such potential liabilities.

A malfunction or the inadequate design of the Company's products could result in product liability or other tort claims. Accidents involving the Company's products could lead to personal injury or physical damage. Any liability for damages resulting from malfunctions could be substantial and could materially adversely affect the Company's business and results of operations. In addition, a well-publicized actual or perceived problem could adversely affect the market's perception of the Company's products. This could result in a decline in demand for the Company's products, which would materially adversely affect the Company's financial condition and results of operations.

The sale and use of products and processes developed by the Company may entail potential liability and possible warranty claims. The Company may be subject to personal injury claims for injuries resulting from use of its products. Although the Company maintains product liability insurance, there can be no assurance that such insurance will continue to be available on commercially reasonable terms or that the risks covered, or coverage amounts will be sufficient to cover all claims.

Information systems disruptions

The Company relies on various information technology systems to manage its operations. Over the last several years, the Company has implemented, and it continues to implement, modifications and upgrades to such systems, including changes to legacy systems, replacing legacy systems with successor systems with new functionality, and acquiring new systems with new functionality. These types of activities subject the Company to inherent costs and risks associated with replacing and changing these systems, including impairment of the Company's ability to fulfill customer orders, potential disruption of its internal control structure, substantial capital expenditures, additional administration and operating expenses, retention of sufficiently skilled personnel to implement and operate the new systems, demands on management time and other risks and costs of delays or difficulties in transitioning to or integrating new systems into the Company's current systems. These implementations, modifications, and upgrades may not result in productivity improvements at a level that outweighs the costs of implementation, or at all. In addition, the difficulties with implementing new technology systems may cause disruptions in the Company's business operations and have a material adverse effect on its business, financial condition, or results of operations.

Security Breaches

As part of its day-to-day business, the Company stores its data and certain data about its customers in its global information technology system. Unauthorized access to the Company's data, including any regarding its customers, could expose the Company to a risk of loss of this information, loss of business, litigation and possible liability. These security measures may be breached by intentional misconduct by computer hackers, as a result of third-party action, employee error, malfeasance or otherwise. Additionally, third parties may attempt to fraudulently induce employees or customers into disclosing sensitive information such as usernames, passwords or other information in order to gain access to the data of the Company's customers or the Company's data, including the Company's intellectual property and other confidential business information, or the Company's information technology systems. Because the techniques used to obtain unauthorized access, or to sabotage systems, change frequently and generally are not recognized until launched against a target, the Company may be unable to anticipate these techniques or to implement adequate preventative measures. Any security breach could result in a loss of confidence by the Company's customers, damage its reputation, disrupt its business, lead to legal liability and negatively impact its future sales.

Public Health Crisis

Public health crises, including local, regional, national or international outbreak of a contagious disease, could have an adverse effect on local economies, the global economy, and the markets in which the Company operates and markets its products, and may adversely impact the price and demand for the Company's products and the ability of the Company to operate and market its products. Any such alterations or modifications could cause substantial interruption to the Company's business, any of which could have a material adverse effect on the Company's operations or financial results, and could include temporary closures of one or more of the Company's or its partner's offices or facilities; temporary or long-term labor shortages; temporary or long-term adverse impacts on the Company's supply chain and distribution channels; the potential of increased network vulnerability and risk of data loss resulting from increased use of remote access and removal of data from the Company's facilities.

Subsequent to December 31, 2019, the global emergence of coronavirus (COVID-19) occurred. The global outbreak of COVID-19 has resulted in governments worldwide enacting emergency measures to protect against the spread of the virus. These measures, which include, among other things, limitations on travel, self-imposed quarantine periods and social distancing measures, have caused material disruption to businesses globally resulting in an economic slowdown. Global equity markets have experienced significant volatility and weakness. Governments and central banks have reacted with significant monetary and fiscal interventions designed to stabilize economic conditions. The duration and impact of the COVID-19 outbreak is unknown at this time, as is the efficacy of any government and/or central bank interventions. It is not possible to reliably estimate the length and severity of these developments and the impact on the financial results and condition of the Company in future periods.

As of the date of this MD&A, the Company has successfully continued operations under COVID-19 protocols. COVID-19 has not resulted in any significant/material delays in the development or testing of the Company's products or any other material development projects. However, the Company is currently experiencing minor delays and/or interruptions within the supply chain, and labour pool, which may affect the %-complete accounting basis of reporting financial results. The Company believes any disruptions will be manageable and does not believe such disruptions will affect the overall contracts with customers but may result in delays in reporting results. At this stage the Company does not see a return to complete normalcy before Q2 2022. In conclusion, as a result of the COVID-19 pandemic and other factors, the Company and its suppliers have experienced increased, but not material, delays in delivery of their goods. As the pandemic continues, increased delays in contract procurement, project completion and other operating activities may occur.

The majority of PyroGenesis' revenue is accounted for on a percentage of completion basis and is dependent on the timing of project initiation and execution, including project engineering, manufacturing, and testing. Any disruptions caused by the pandemic may delay the Company's ability to complete its projects within the originally anticipated timeframe.

The Company's production schedule has continued throughout COVID-19 on a modified employee schedule, with certain non-production employees working remotely. The Company has been able to operate largely unaffected by the COVID-19 pandemic. Notwithstanding the foregoing, if the Company or its vendors and suppliers are unable to continue operations or keep up with increasing demands as a result of COVID-19, customers may experience delays or interruptions in service or the delivery of products, which may be detrimental to the Company's reputation, business, results of operations and financial position. The Company cautions that it is impossible to fully anticipate or quantify the effect and ultimate impact of the COVID-19 pandemic as the situation is rapidly evolving. The extent to which COVID-19 impacts the Company's results will depend on future developments, which are highly uncertain and cannot be predicted, including new information that may emerge concerning the severity of COVID-19 and the actions taken by governments to contain it or treat its impact, including shelter in place directives, which, if extended, may impact the economies in which the Company now operates, or may in the future operate, key markets into which the Company sells products and delivers services, and markets through which the Company's key suppliers source their products.

Litigation

The Company may from time to time become party to litigation in the ordinary course of business which could adversely affect its business. Should any litigation in which the Company becomes involved be determined against the Company, such a decision could adversely affect the Company's ability to continue operating and the market price for the Common Shares and could use significant resources. Even if the Company is involved in litigation and wins, litigation can redirect significant Company resources. Litigation may also create a negative perception of the Company's brand.

Trade Secrets May Be Difficult to Protect

The Company's success depends upon the skills, knowledge and experience of its scientific and technical personnel, consultants and advisors, as well as contractors. Because the Company operates in a highly competitive industry, it relies in part on trade secrets to protect its proprietary products and processes. However, trade secrets are difficult to protect. The Company generally enters into confidentiality or non-disclosure agreements with its corporate partners, employees, consultants, outside scientific collaborators, developers and other advisors. These agreements generally require that the receiving party keep confidential, and not disclose to third parties, confidential information developed by the receiving party or made known to the receiving party by the Company during the course of the receiving party's relationship with the Company. These agreements also generally provide that inventions conceived by the receiving party in the course of rendering services to the Company will be its exclusive property, and the Company enters into assignment agreements to perfect its rights.

These confidentiality, inventions, and assignment agreements, where in place, may be breached and may not effectively assign intellectual property rights to the Company. The Company's trade secrets also could be independently discovered by competitors, in which case the Company would not be able to prevent the use of such trade secrets by its competitors. The enforcement of a claim alleging that a party illegally obtained and was using the Company's trade secrets could be difficult, expensive and time consuming and the outcome could be unpredictable. The failure to obtain or maintain meaningful trade secret protection could adversely affect the Company's competitive position.

Risks Related to Acquiring Companies

The Company may acquire other companies in the future and there are risks inherent in any such acquisition. Specifically, there could be unknown or undisclosed risks or liabilities of such companies for which the Company is not sufficiently indemnified. Any such unknown or undisclosed risks or liabilities could materially and adversely affect the Company's financial performance and results of operations. The Company could encounter additional transaction and integration related costs or other factors such as the failure to realize all of the benefits from such acquisitions. All of these factors could cause dilution to the Company's earnings per share or decrease or delay the anticipated accretive effect of the acquisition and cause a decrease in the market price of the Company's securities. The Company may not be able to successfully integrate and combine the operations, personnel and technology infrastructure of any such acquired company with its existing operations. If integration is not managed successfully by the Company's management, the Company may experience interruptions in its business activities, deterioration in its employee and customer relationships, increased costs of integration and harm to its reputation, all of which could have a material adverse effect on the Company's business, financial condition and results of operations. The Company may experience difficulties in combining corporate cultures, maintaining employee morale and retaining key employees. The integration of any such acquired companies may also impose substantial demands on the management. There is no assurance that these acquisitions will be successfully integrated in a timely manner.

Global Economic Uncertainty

Demand for the Company's products and services are influenced by general economic and consumer trends beyond the Company's control. There can be no assurance that the Company's business and corresponding financial performance will not be adversely affected by general economic or consumer trends. In particular, global economic conditions are still tight, and if such conditions continue, recur or worsen, there can be no assurance that they will not have a material adverse effect on the Company's business, financial condition and results of operations.

Furthermore, such economic conditions have produced downward pressure on stock prices and on the availability of credit for financial institutions and corporations. If these levels of market disruption and volatility continue, the Company might experience reductions in business activity, increased funding costs and funding pressures, as applicable, a decrease in the market price of the Common Shares, a decrease in asset values, additional write-downs and impairment charges and lower profitability.

Inability to Renew Leases

The Company may be unable to renew or maintain its leases (commercial or real property) on commercially acceptable terms or at all. An inability to renew its leases, or a renewal of its leases with a rental rate higher than the prevailing rate under the applicable lease prior to expiration, may have an adverse impact on the Company's operations, including disruption of its operations or an increase in its cost of operations. In addition, in the event of non-renewal of any of the Company's leases, the Company may be unable to locate suitable replacement properties for its facilities or it may experience delays in relocation that could lead to a disruption in its operations. Any disruption in the Company's operations could have an adverse effect on its financial condition and results of operations.

Financial Reporting and Other Public Issuer Requirements

As a public company, the Company is subject to the reporting requirements of the Canadian Securities Administrators, or the CSA, and the U.S. Securities Exchange Act of 1934, as amended, and the rules and regulations of the listing standards of the TSX and NASDAQ and the U.S. Sarbanes-Oxley Act. The requirements of these laws, rules and regulations have increased and will continue to increase the Company's legal, accounting, and financial compliance costs, make some activities more difficult, time-consuming, and costly, and place significant strain on the Company's personnel, systems, and resources. The Company is continuing to develop and refine its disclosure controls and other procedures that are designed to ensure that information required to be disclosed by the Company in the reports that it will file with the CSA is recorded, processed, summarized, and reported within the time periods specified in CSA rules and forms and that information required to be disclosed in reports under applicable securities laws is accumulated and communicated to the Company's principal executive and financial officers. The Company is also continuing to improve its internal control over financial reporting. In order to improve the effectiveness of its disclosure controls and procedures and internal control over financial reporting, the Company has expended, and anticipate that it will continue to expend, significant resources, including accounting-related costs and significant management oversight.

The Company has identified certain material weaknesses in its internal controls, as more fully explained in its management's discussion and analysis for the year ended December 31, 2020 under "Disclosure Controls and Procedures". Additional weaknesses in the Company's disclosure controls and internal control over financial reporting may also be discovered in the future. Any failure to develop or maintain effective controls or any difficulties encountered in their implementation or improvement could harm the Company's results of operations or cause the Company to fail to meet its reporting obligations and may result in a restatement of the Company's financial statements for prior periods. Any failure to improve and maintain effective internal control over financial reporting also could adversely affect the results of periodic management evaluations and annual independent registered public accounting firm attestation reports regarding the effectiveness of the Company's internal control over financial reporting that the Company will eventually be required to include in its periodic reports that will be filed with the CSA. Ineffective disclosure controls and procedures and internal control over financial reporting could also cause investors to lose confidence in the Company's reported financial and other information, which could have a negative effect on the trading price of the Common Shares. In addition, if the Company is unable to continue to meet these requirements, it may not be able to remain listed on the TSX and/or NASDAQ.

Influence of the Significant Shareholders

To the Company's knowledge, no shareholder beneficially owns, or controls or directs, directly or indirectly, more than 10% of the voting rights attached to the Company's outstanding voting securities, except for Mr. Peter Pascali, President and Chief Executive Officer of the Company, who holds or controls, directly or indirectly, 80,571,498 Common Shares, representing in aggregate 48.03% of the total voting rights attached to the outstanding Common Shares, and options to acquire an additional 6,850,000 Common Shares (increasing the total number of Common Shares held or controlled, directly or indirectly, by him to 87,421,498 Common Shares, or 50.07% or the Common Shares, on a fully diluted basis). In addition, from time to time, the Company may have other shareholders who have the ability to exercise significant influence over matters submitted to the shareholders of the Company for approval, whether subject to approval by a majority of the shareholders of the Company or subject to a class vote or special resolution.

Limited Control Over the Company's Operations

Holders of the Common Shares have limited control over changes in the Company's policies and operations, which increases the uncertainty and risks of an investment in the Company. The Board determines major policies, including policies regarding financing, growth, debt capitalization and any future dividends to shareholders of the Company. Generally, the Board may amend or revise these and other policies without a vote of the holders of the Common Shares. The Board's broad discretion in setting policies and the limited ability of holders of the Common Shares to exert control over those policies increases the uncertainty and risks of an investment in the Company.

Change in Tax Laws

New income, sales, use or other tax laws, statutes, rules, regulations or ordinances could be enacted at any time. Further, existing tax laws, statutes, rules, regulations or ordinances could be interpreted, changed, modified or applied adversely to the Company. These enactments and events could require the Company to pay additional tax amounts on a prospective or retroactive basis, thereby substantially increasing the amount of taxes the Company is liable to pay in the relevant tax jurisdictions. Accordingly, these events could decrease the capital that the Company has available to operate its business. Any or all of these events could harm the business and financial performance of the Company.

Forward-Looking Information

The forward-looking information included in this MD&A relating to, among other things, the Company's future results, performance, achievements, prospects, targets, intentions or opportunities or the markets in which it operates and the other statements listed is based on opinions, assumptions and estimates made by the Company's management in light of its experience and perception of historical trends, current conditions and expected future developments, as well as other factors that the Company believes are appropriate and reasonable in the circumstances. However, there can be no assurance that such estimates and assumptions will prove to be correct. The Company's actual results in the future may vary significantly from the historical and estimated results and those variations may be material. The Company makes no representation that its actual results in the future will be the same, in whole or in part, as those included in this MD&A.

Credit Facilities

The Company's credit facilities and financing agreements mature on various dates. There can be no assurance that such credit facilities or financing agreements will be renewed or refinanced, or if renewed or refinanced, that the renewal or refinancing will occur on equally favourable terms to the Company. The Company's ability to continue operating may be adversely affected if the Company is not able to renew its credit facilities or arrange refinancing, or if such renewal or refinancing, as the case may be, occurs on terms materially less favorable to the Company than at present. The Company's current credit facilities and financing agreements impose covenants and obligations on the Company. There is a risk that such loans may go into default if there is a breach in complying with such covenants and obligations, which could result in the lenders realizing on their security and causing our shareholders to lose some or all of their investment.

Risks Related to the Company's Securities

Potential Volatility of Common Share Price

The market price of the Common Shares could be subject to significant fluctuations. Some of the factors that may cause the market price of the Common Shares to fluctuate include:

(i) the public's reaction to the Company's press releases, announcements and filings with regulatory authorities and those of its competitors;

(ii) fluctuations in broader stock market prices and volumes;

(iii) changes in market valuations of similar companies;

(iv) investor perception of the Company, its prospects or the industry in general;

(v) additions or departures of key personnel;

(vi) commencement of or involvement in litigation;

(vii) announcements by the Company or its competitors of strategic alliances, significant contracts, new technologies, acquisitions, commercial relationships, joint ventures or capital commitments;

(viii) variations in the Company's quarterly results of operations or cash flows or those of other comparable companies;

(ix) revenues and operating results failing to meet the expectations of securities analysts or investors in particular quarter;

(x) changes in the Company's pricing policies or the pricing policies of its competitors;

(xi) future issuances and sales of Common Shares;

(xii) sales of Common Shares by insiders of the Company;

(xiii) third party disclosure of significant short positions;

(xiv) demand for and trading volume of Common Shares;

(xv) changes in securities analysts' recommendations and their estimates of the Company's financial performance;

(xvi) short-term fluctuation in stock price caused by changes in general conditions in the domestic and worldwide economies or financial markets; and

(xvii) the other risk factors described under this heading of the MD&A.

The realization of any of these risks and other factors beyond the Company's control could cause the market price of the Common Shares to decline significantly.

In addition, broad market and industry factors may harm the market price of the Common Shares. Hence, the price of the Common Shares could fluctuate based upon factors that have little or nothing to do with the Company, and these fluctuations could materially reduce the price of the Common Shares regardless of the Company's operating performance. In the past, following a significant decline in the market price of a company's securities, there have been instances of securities class action litigation having been instituted against that company. If the Company were involved in any similar litigation, it could incur substantial costs, management's attention and resources could be diverted and it could harm the Company's business, operating results and financial condition.

Market Liquidity

The market price for the Common Shares could be subject to wide fluctuations. Factors such as the announcement of significant contracts, technological innovations, new commercial products, patents, a change in regulations, quarterly financial results, future sales of Common Shares by the Company or current shareholders, and many other factors could have considerable repercussions on the price of the Common Shares. In addition, the financial markets may experience significant price and value fluctuations that affect the market prices of equity securities of companies that sometimes are unrelated to the operating performance of these companies. Broad market fluctuations, as well as economic conditions generally may adversely affect the market price of the Common Shares.

Dividends to Shareholders

The Company does not anticipate paying cash dividends on the Common Shares in the foreseeable future. The Company currently intends to retain all future earnings to fund the development and growth of its business. Any payment of future dividends will be at the discretion of the directors and will depend on, among other things, the Company's earnings, financial condition, capital requirements, level of indebtedness, statutory and contractual restrictions applying to the payment of dividends, and other considerations that the directors deems relevant.

Impact of Future Sales by Existing Shareholders

If the Company's shareholders sell substantial amounts of the Common Shares in the public market, the market price of the Common Shares could decrease. The perception among investors that these sales will occur could also produce this effect. All currently outstanding Common Shares other than those subject to lock-up agreements executed by certain existing shareholders will, subject to applicable securities laws, generally be immediately available for resale in the public markets.

Subject to compliance with applicable securities laws, the Company's officers, directors and their affiliates may sell some or all of their Common Shares in the future. No prediction can be made as to the effect, if any, such future sales of Common Shares will have on the market price of the Common Shares prevailing from time to time. However, the future sale of a substantial number of Common Shares by the Company's officers, directors and their affiliates, or the perception that such sales could occur, could materially adversely affect prevailing market prices for the Common Shares.

Additional Common Shares issuable upon the exercise of stock options may also be available for sale in the public market, which may also cause the market price of the Common Shares to fall. Accordingly, if substantial amounts of Common Shares are sold in the public market, the market price could fall.

Working Capital and Future Issuances

The Company may issue additional Common Shares in the future which may dilute a shareholder's holdings in the Company. The Articles permit the issuance of an unlimited number of Common Shares, and shareholders of the Company will have no pre-emptive rights in connection with any further issuances The directors of the Company have the discretion to determine the provisions attaching to the Common Shares and the price and the terms of issue of further Common Shares.

Additional equity financing may be dilutive to holders of Common Shares. Debt financing may involve restrictions on the Company's financing and operating activities. Debt financing may be convertible into other securities of the Company which may result in immediate or resulting dilution. In either case, additional financing may not be available to the Company on acceptable terms or at all. If the Company is unable to raise additional funds as needed, the scope of its operations or growth may be reduced and, as a result, the Company may be unable to fulfil its long-term goals. In this case, investors may lose all or part of their investment. Any default under such debt instruments could have a material adverse effect on the Company, its business or the results of operations.

Securities or Industry Analysts

The trading market for Common Shares could be influenced by the research and reports that industry and/or securities analysts may publish about the Company, its business, the market or competitors. If any of the analysts who may cover the Company's business change their recommendation regarding the Common Shares adversely, or provide more favourable relative recommendations about its competitors, the share price would likely decline. If any analyst who may cover the Company's business were to cease coverage or fail to regularly publish reports on the Company, it could lose visibility in the financial markets, which in turn could cause the share price or trading volume to decline.

Risks Related to the Company's Status as a Foreign Private Issuer

Information Publicly Available to the Company's U.S. shareholders

The Company is a foreign private issuer under applicable U.S. federal securities laws. As a result, the Company does not file the same reports that a U.S. domestic issuer would file with the U.S. Securities and Exchange Commission (the "SEC"), although the Company is required to file with or furnish to the SEC the continuous disclosure documents that the Company is required to file in Canada under Canadian Securities Laws, in certain respects the reporting obligations are less detailed and less frequent than those of U.S. domestic reporting companies. In addition, the Company's officers, directors and principal shareholders are exempt from the reporting and short-swing profit recovery provisions of Section 16 of the U.S. Exchange Act. Therefore, the Company's shareholders may not know on as timely a basis when the Company's officers, directors and principal shareholders purchase or sell Common Shares as the reporting periods under the corresponding Canadian insider reporting requirements are longer.

As a foreign private issuer, the Company is exempt from the rules and regulations under the Exchange Act related to the furnishing and content of proxy statements. The Company is also exempt from Regulation FD, which prohibits issuers from making selective disclosures of material non-public information. While the Company complies with the corresponding requirements relating to proxy statements and disclosure of material non-public information under Canadian securities laws, these requirements differ from those under the Exchange Act and Regulation FD and shareholders should not expect to receive the same information at the same time as such information is provided by U.S. domestic companies. In addition, the Company may not be required under the Exchange Act to file annual and quarterly reports with the SEC as promptly as U.S. domestic companies whose securities are registered under the Exchange Act.

In addition, as a foreign private issuer, the Company has the option to follow certain Canadian corporate governance practices, except to the extent that such laws would be contrary to U.S. securities laws, and provided that the Company discloses the requirements it is not following and describe the Canadian practices it follows instead. The Company plans to rely on this exemption. As a result, the Company's shareholders may not have the same protections afforded to shareholders of U.S. domestic companies that are subject to all U.S. corporate governance requirements.

Loss of Foreign Private Issuer Status in the Future

In order to maintain its status as a foreign private issuer, a majority of the Company's Common Shares must be either directly or indirectly owned by non-residents of the U.S. unless the Company also satisfies one of the additional requirements necessary to preserve this status. The Company may in the future lose its foreign private issuer status if a majority of the Common Shares are held in the United States and the Company fails to meet the additional requirements necessary to avoid loss of foreign private issuer status. The regulatory and compliance costs to the Company under U.S. federal securities laws as a U.S. domestic issuer may be significantly more than the costs the Company incurs as a Canadian foreign private issuer eligible to use the multi-jurisdictional disclosure system ("MJDS"). If the Company is not a foreign private issuer, it would not be eligible to use the MJDS or other foreign issuer forms and would be required to file periodic and current reports and registration statements on U.S. domestic issuer forms with the SEC, which are more detailed and extensive than the forms available to a foreign private issuer. In addition, the Company may lose the ability to rely upon exemptions from Nasdaq corporate governance requirements that are available to foreign private issuers.

Inability for U.S. Investors to Enforce Certain Judgments

The Company is a corporation existing under the Canada Business Corporations Act. A number of the Company's directors and officers are residents of Canada, and substantially all of the Company's assets are located outside the United States. As a result, it may be difficult to effect service within the United States upon the Company or upon its directors and officers. Execution by United States courts of any judgment obtained against the Company or any of the Company's directors or officers in United States courts may be limited to the assets of such companies or such persons, as the case may be, located in the United States. It may also be difficult for holders of securities who reside in the United States to realize in the United States upon judgments of courts of the United States predicated upon civil liability and the civil liability of the Company's directors and executive officers under the United States federal securities laws. The Company has been advised that a judgment of a U.S. court predicated solely upon civil liability under U.S. federal securities laws or the securities or "blue sky" laws of any state within the United States, would likely be enforceable in Canada if the United States court in which the judgment was obtained has a basis for jurisdiction in the matter that would be recognized by a Canadian court for the same purposes. However, there may be doubt as to the enforceability in Canada against these non-U.S. entities or their controlling persons, directors and officers who are not residents of the United States, in original actions or in actions for enforcement of judgments of courts of the United States, of liabilities predicated solely upon U.S. federal or state securities laws.

Risks Relating to the Company's Status as an "Emerging Growth Company" Under U.S. Securities Laws

The Company is an "emerging growth company" as defined in section 3(a) of the Exchange Act (as amended by the JOBS Act, enacted on April 5, 2012), and the Company will continue to qualify as an emerging growth company until the earliest to occur of: (a) the last day of the fiscal year during which the Company has total annual gross revenues of US$1,070,000,000 (as such amount is indexed for inflation every five years by the SEC) or more; (b) the last day of the fiscal year of the Company following the fifth anniversary of the date of the first sale of common equity securities of the Company pursuant to an effective registration statement under the United States Securities Act of 1933, as amended; (c) the date on which the Company has, during the previous three year period, issued more than US$1,000,000,000 in non-convertible debt; and (d) the date on which the Company is deemed to be a "large accelerated filer", as defined in Rule 12b-2 under the Exchange Act. The Company will qualify as a large accelerated filer (and would cease to be an emerging growth company) at such time when on the last business day of its second fiscal quarter of such year the aggregate worldwide market value of its common equity held by non-affiliates will be US$700,000,000 or more.

For so long as the Company remains an emerging growth company, it is permitted to and intends to rely upon exemptions from certain disclosure requirements that are applicable to other public companies that are not emerging growth companies. These exemptions include not being required to comply with the auditor attestation requirements of Section 404 of the JOBS Act. The Company takes advantage of some, but not all, of the available exemptions available to emerging growth companies. The Company cannot predict whether investors will find the Common Shares less attractive because the Company relies upon certain of these exemptions. If some investors find the Common Shares less attractive as a result, there may be a less active trading market for the Common Shares and the Common Share price may be more volatile. On the other hand, if the Company no longer qualifies as an emerging growth company, the Company would be required to divert additional management time and attention from the Company's development and other business activities and incur increased legal and financial costs to comply with the additional associated reporting requirements, which could negatively impact the Company's business, financial condition and results of operations.

Form 52-109F2
Certification of Interim Filings Full Certificate

I, P. Peter Pascali, Chief Executive Officer of PyroGenesis Canada Inc., certify the following:

1. ***Review:*** I have reviewed the interim financial report and interim MD&A (together, the "interim filings") of PyroGenesis Canada Inc. (the "issuer") for the interim period ended June 30, 2021.

2. ***No misrepresentations:*** Based on my knowledge, having exercised reasonable diligence, the interim filings do not contain any untrue statement of a material fact or omit to state a material fact required to be stated or that is necessary to make a statement not misleading in light of the circumstances under which it was made, with respect to the period covered by the interim filings.

3. ***Fair presentation:*** Based on my knowledge, having exercised reasonable diligence, the interim financial report together with the other financial information included in the interim filings fairly present in all material respects the financial condition, financial performance and cash flows of the issuer, as of the date of and for the periods presented in the interim filings.

4. ***Responsibility:*** The issuer's other certifying officer(s) and I are responsible for establishing and maintaining disclosure controls and procedures (DC&P) and internal control over financial reporting (ICFR), as those terms are defined in National Instrument 52-109 *Certification of Disclosure in Issuers' Annual and Interim Filings*, for the issuer.

5. ***Design:*** Subject to the limitations, if any, described in paragraphs 5.2 and 5.3, the issuer's other certifying officer(s) and I have, as at the end of the period covered by the interim filings

   (a) designed DC&P, or caused it to be designed under our supervision, to provide reasonable assurance that

      (i) material information relating to the issuer is made known to us by others, particularly during the period in which the interim filings are being prepared; and

      (ii) information required to be disclosed by the issuer in its annual filings, interim filings or other reports filed or submitted by it under securities legislation is recorded, processed, summarized and reported within the time periods specified in securities legislation; and

   (b) designed ICFR, or caused it to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with the issuer's GAAP.

5.1 ***Control framework:*** The control framework the issuer's other certifying officer(s) and I used to design the issuer's ICFR is the Internal Control – Integrated Framework (2013 COSO Framework) published by The Committee of Sponsoring Organizations of the Treadway Commission.

5.2 ***ICFR – material weakness relating to design:*** The issuer has disclosed in its interim MD&A for each material weakness relating to design existing at the end of the interim period

   (a) a description of the material weakness;

(b) the impact of the material weakness on the issuer’s financial reporting and its ICFR; and

(c) the issuer’s current plans, if any, or any actions already undertaken, for remediating the material weakness.

5.3 Limitation on scope of design: N/A

6. ***Reporting changes in ICFR:*** The issuer has disclosed in its interim MD&A any change in the issuer’s ICFR that occurred during the period beginning on April 1, 2021 and ended on June 30, 2021 that has materially affected, or is reasonably likely to materially affect, the issuer’s ICFR.

Date: August 16, 2021

P. Peter Pascali
Signed with ConsignO Cloud (2021/08/16)
Verify with verifio.com or Adobe Reader.
notarius

P. Peter Pascali
Chief Executive Officer

Form 52-109F2
Certification of Interim Filings Full Certificate

I, Ben Simo, Chief Financial Officer of PyroGenesis Canada Inc., certify the following:

1. ***Review:*** I have reviewed the interim financial report and interim MD&A (together, the "interim filings") of PyroGenesis Canada Inc. (the "issuer") for the interim period ended June 30, 2021.

2. ***No misrepresentations:*** Based on my knowledge, having exercised reasonable diligence, the interim filings do not contain any untrue statement of a material fact or omit to state a material fact required to be stated or that is necessary to make a statement not misleading in light of the circumstances under which it was made, with respect to the period covered by the interim filings.

3. ***Fair presentation:*** Based on my knowledge, having exercised reasonable diligence, the interim financial report together with the other financial information included in the interim filings fairly present in all material respects the financial condition, financial performance and cash flows of the issuer, as of the date of and for the periods presented in the interim filings.

4. ***Responsibility:*** The issuer's other certifying officer(s) and I are responsible for establishing and maintaining disclosure controls and procedures (DC&P) and internal control over financial reporting (ICFR), as those terms are defined in National Instrument 52-109 *Certification of Disclosure in Issuers' Annual and Interim Filings*, for the issuer.

5. ***Design:*** Subject to the limitations, if any, described in paragraphs 5.2 and 5.3, the issuer's other certifying officer(s) and I have, as at the end of the period covered by the interim filings

   (a) designed DC&P, or caused it to be designed under our supervision, to provide reasonable assurance that

      (i) material information relating to the issuer is made known to us by others, particularly during the period in which the interim filings are being prepared; and

      (ii) information required to be disclosed by the issuer in its annual filings, interim filings or other reports filed or submitted by it under securities legislation is recorded, processed, summarized and reported within the time periods specified in securities legislation; and

   (b) designed ICFR, or caused it to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with the issuer's GAAP.

5.1 ***Control framework:*** The control framework the issuer's other certifying officer(s) and I used to design the issuer's ICFR is the Internal Control – Integrated Framework (2013 COSO Framework) published by The Committee of Sponsoring Organizations of the Treadway Commission.

5.2 ***ICFR – material weakness relating to design:*** The issuer has disclosed in its interim MD&A for each material weakness relating to design existing at the end of the interim period

   (a) a description of the material weakness;

(b) the impact of the material weakness on the issuer’s financial reporting and its ICFR; and

(c) the issuer’s current plans, if any, or any actions already undertaken, for remediating the material weakness.

5.3 Limitation on scope of design: N/A

6. ***Reporting changes in ICFR:*** The issuer has disclosed in its interim MD&A any change in the issuer’s ICFR that occurred during the period beginning on April 1, 2021 and ended on June 30, 2021 that has materially affected, or is reasonably likely to materially affect, the issuer’s ICFR.

Date: August 16, 2021

Ben Simo
Chief Financial Officer