

Meta Materials Inc. – 2021 Annual Report

**UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
WASHINGTON, DC 20549**

FORM 10-K/A

(Mark One)

- ANNUAL REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934
For the fiscal year ended December 31, 2021
OR
 TRANSITION REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934 FOR THE TRANSITION PERIOD FROM
TO

Commission File Number: 001-36247

Meta Materials Inc.
(Exact Name of Registrant as Specified in its Charter)

Nevada
(State or other jurisdiction of
incorporation or organization)

74-3237581
(I.R.S. Employer
Identification No.)

1 Research Drive
Dartmouth, Nova Scotia
(Address of principal executive offices)

B2Y 4M9
(Zip Code)

Registrant's telephone number, including area code: (902) 482-5729

Securities registered pursuant to Section 12(b) of the Act:

Title of each class	Trading Symbol(s)	Name of each exchange on which registered
Common Stock, par value \$0.001 per share	MMAT	Nasdaq Capital Market

Securities registered pursuant to Section 12(g) of the Act: None

Indicate by check mark if the Registrant is a well-known seasoned issuer, as defined in Rule 405 of the Securities Act. YES NO

Indicate by check mark if the Registrant is not required to file reports pursuant to Section 13 or 15(d) of the Act. YES NO

Indicate by check mark whether the Registrant: (1) has filed all reports required to be filed by Section 13 or 15(d) of the Securities Exchange Act of 1934 during the preceding 12 months (or for such shorter period that the Registrant was required to file such reports), and (2) has been subject to such filing requirements for the past 90 days. YES NO

Indicate by check mark whether the Registrant has submitted electronically every Interactive Data File required to be submitted pursuant to Rule 405 of Regulation S-T (§232.405 of this chapter) during the preceding 12 months (or for such shorter period that the Registrant was required to submit such files). YES NO

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, smaller reporting company, or an emerging growth company. See the definitions of “large accelerated filer,” “accelerated filer,” “smaller reporting company,” and “emerging growth company” in Rule 12b-2 of the Exchange Act.

Large accelerated filer
Non-accelerated filer

Accelerated filer
Smaller reporting company
Emerging growth company

If an emerging growth company, indicate by check mark if the registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards provided pursuant to Section 13(a) of the Exchange Act.

Indicate by check mark whether the registrant has filed a report on and attestation to its management’s assessment of the effectiveness of its internal control over financial reporting under Section 404(b) of the Sarbanes-Oxley Act (15 U.S.C. 7262(b)) by the registered public accounting firm that prepared or issued its audit report.

Indicate by check mark whether the Registrant is a shell company (as defined in Rule 12b-2 of the Exchange Act). YES NO

The aggregate market value of the voting and non-voting common equity held by non-affiliates of the Registrant, based on the closing price of the shares of common stock on June 30, 2021, was \$1,523,026,255.

The number of shares of Registrant’s Common Stock outstanding as of March 1, 2022 was 284,812,797.

EXPLANATORY NOTE

This Amendment No. 1 on Form 10-K/A (the “Amendment”) of Meta Materials, Inc., referred to in this report as “META,” or “the Company,” is being filed to supplement and amend various disclosures, and add exhibits that were not contained in the Company’s Annual Report on Form 10-K for the year ended December 31, 2021 (the “Annual Report”) which was filed on March 2, 2022.

In addition, the Company is filing this Amendment to provide information required in Part III of Form 10-K for the fiscal year ended December 31, 2021, because a definitive proxy statement containing such information will not be filed by the Company within 120 days after the end of the fiscal year covered by the Form 10-K. In accordance with Rule 12b-15 under the Securities and Exchange Act of 1934, as amended (the “Exchange Act”), Part III, Items 10 through 14 of the Annual Report are hereby amended and restated in their entirety.

For amendments made to Part III, this Amendment is organized to reflect information for two periods, January 1, 2021 through June 27, 2021 (“Pre-Merger”) and June 28, 2021 through December 31, 2021 (“Post-Merger”). Effective on June 28, 2021, Metamaterial, Inc., a Canadian company, acquired Torchlight Energy Resources, Inc. via reverse-takeover (the “Merger”). After the Merger, we changed our NASDAQ ticker symbol to MMAT and our name to Meta Materials Inc. The Pre-Merger information reflects the data related to our executive officers and board of directors for the Pre-Merger period (referred to herein as Torchlight) and the Post-Merger information reflects our data after the Merger (referred to herein as META). The board of directors and executive officers of Torchlight during the pre-merger period resigned their positions on the effective date of the Merger.

As of December 31, 2021, the Company became a Large Accelerated Filer and will begin reporting as a non-Smaller Reporting Company, with full disclosure instead of scaled disclosure, in its Q1 Form 10-Q.

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NOTE ABOUT FORWARD-LOOKING STATEMENTS

This Annual Report on Form 10-K contains forward-looking statements within the meaning of Section 27A of the Securities Act of 1933, as amended, and Section 21E of the Securities Exchange Act of 1934, as amended. All statements contained in this Annual Report on Form 10-K other than statements of historical fact, including statements regarding the Company's future results of operations and financial position, its business strategy and plans, and its objectives for future operations, are forward-looking statements. The words "believe," "may," "will," "estimate," "continue," "anticipate," "intend," "expect," and similar expressions are intended to identify forward-looking statements. The Company has based these forward-looking statements largely on its current expectations and projections about future events and trends that it believes may affect its financial condition, results of operations, business strategy, short-term and long-term business operations and objectives, and financial needs. These forward-looking statements are subject to a number of risks,

uncertainties and assumptions, including those described in Part I, Item 1A, "Risk Factors" in this Annual Report on Form 10-K. Moreover, the Company operates in a very competitive and rapidly changing environment. New risks emerge from time to time. It is not possible for management to predict all risks, nor can they assess the impact of all factors on the Company's business or the extent to which any factor, or combination of factors, may cause actual results to differ materially from those contained in any forward-looking statements the Company may make. In light of these risks, uncertainties and assumptions, the future events and trends discussed in this Annual Report on Form 10-K may not occur and actual results could differ materially and adversely from those anticipated or implied in the forward-looking statements.

Item 1. Business.

Business Overview

Meta Materials Inc. (the "Company" or "META" or "Resulting Issuer") is a developer of high-performance functional materials and nanocomposites.

The Company's registered office is located at 85 Swanson Road, Boxborough, Massachusetts 01719, and its principal executive office is located at 1 Research Drive, Halifax, Nova Scotia, Canada.

The Company has generated a portfolio of intellectual property and is now moving toward commercializing products at a performance and price point combination that has the potential to be disruptive in multiple market verticals. The Company's platform technology includes holography, lithography, and medical wireless sensing. The underlying approach that powers the Company's platform technologies comprises advanced materials, metamaterials and functional surfaces. These materials include structures that are patterned in ways that manipulate light, heat, and electromagnetic waves in unusual ways. The Company's advanced structural design technologies and scalable manufacturing methods provide a path to broad commercial opportunities in aerospace and defense, automotive, energy, healthcare, consumer electronics, and data transmission.

Controlling light, heat, electricity, and radio waves have played key roles in technological advancements throughout history. Advances in electrical and electromagnetic technologies, wireless communications, lasers, and computers have all been made possible by challenging the understanding of how light and other types of energy naturally behave, and how it is possible to manipulate them.

Over the past 20 years, techniques for producing nanostructures have matured, resulting in a wide range of groundbreaking solutions that can control light, heat, and electromagnetic waves at very small scales. Some of the areas of advancement that have contributed to these techniques are photonic crystals, nanolithography, plasmonic phenomena and nanoparticle manipulation. From these advances, a new branch of material science has emerged – metamaterials. Metamaterials are composite structures, consisting of conventional materials such as metals and plastics, which are engineered by scientists to exhibit new or enhanced properties relating to reflection, refraction, diffraction, filtering, conductance and other properties that have the potential for multiple commercial applications.

A metamaterial typically consists of a multitude of structured unit nano-cells that are comprised of multiple individual elements. These are referred to as meta-atoms. The individual elements are usually arranged in periodic patterns that, together, can manipulate light, heat, or electromagnetic waves. Development strategies for metamaterials and functional surfaces focus on structures that produce unusual and exotic electromagnetic properties by manipulating light and other forms of energy in ways that have never been naturally possible. They gain their properties not as much from their composition as from their exactly designed structures. The precise shape, geometry, size, orientation, and arrangement of these nanostructures affect the light and other electromagnetic waves to create material properties that are not easily achievable with conventional materials.

The Company has many product concepts currently in various stages of development with multiple potential customers in diverse market verticals. The Company's business model is to co-develop innovative products or applications with industry leaders that add value. This approach enables the Company to understand market dynamics and ensure the relevance and need for its products.

Holography Technology

Holography is a technique where collimated visible wavelength lasers are used to directly write an interference pattern inside the volume of light-sensitive material (photopolymer) in order to produce highly transparent optical filters and holographic optical elements. For some product lines that require large surface areas, this is combined with a proprietary scanning technique, where the lasers, optically or mechanically, directly write nano-patterns to cover large surface areas with nanometer accuracy.

META's principal products that employ holography technology are its metaAIR® laser glare protection eyewear, metaAIR® laser glare protection films for law enforcement and holoOPTIX™ notch filters. META co-developed its metaAIR® laser glare protection eyewear product with Airbus S.A.S. It has been engineered to provide laser glare protection for pilots, military and law enforcement using META's holography technology. metaAIR® is a holographic optical filter developed using nano-patterned designs that block and deflect specific colors or wavelengths of light. META launched metaAIR® with strategic and exclusive distribution partner, Satair, a wholly owned Airbus company and started producing and selling metaAIR® in April 2019. The scale-up and specification for the raw photopolymer material used to produce the eyewear was successfully finalized in late 2019 and commercialized in 2020. META launched its laser glare protection films for law enforcement use in late 2020. These films are designed to be applied to face shields and helmet visors providing the wearer with the same type of laser glare eye protection afforded to pilots by metaAIR® glasses while preserving peripheral vision critical to law enforcement duties. HoloOPTIX™ notch filters are optical filters that selectively reject a portion of the spectrum, while transmitting all other wavelengths. They are used in applications where it is necessary to block light from a laser, as in machine vision applications and in confocal or multi-photon microscopy, laser-based fluorescence instrumentation, or other life science applications. HoloOPTIX™ notch filters were commercially launched by the Company in November 2020.

META has additional products in development that utilize its proprietary holography technology. Included in the holoOPTIX™ family of products are holographic optical elements ("HOEs"). HOEs are a core component in the display of augmented reality smart glasses products, as well as (in their larger version) in Heads-Up Displays ("HUDs"), in automobiles and aircraft.

Lithography Technology

Lithography is a process commonly used in the fabrication of integrated circuits, in which a light-sensitive polymer (photoresist), is exposed and developed to form 3D relief images on the substrate, typically a silicon wafer of up to 300mm (11.8 inches) in diameter. In order to meet the performance, fabrication-speed, and/or cost criteria required for many potential applications that require large area and low cost nanopatterning, the Company has developed a new nanolithography method called "Rolling Mask" lithography (registered trademark RML®), which combines the best features of photolithography, soft lithography and roll-to-plate/roll-to-roll printing capability technologies. Rolling Mask Lithography utilizes a proprietary UV light exposure method where a master pattern is provided in the form of a cylindrical mask. These master patterns are designed by the Company and over the years they have become part of a growing library of patterns, enriching the intellectual property ("IP") of the Company. The nanostructured pattern on the mask is then rolled over a flat surface area writing a nano-pattern into the volume of a photoresist, creating patterned grooves, metal is then evaporated and fills the patterned grooves. The excess metal is then removed by a known post-process called lift-off. The result is an invisible conductive metal mesh-patterned surface (registered trademark NANOWEB®) that can be fabricated onto any glass or plastic transparent surface in order to offer high transparency, high conductivity and low haze smart materials.

The Company's current principal prototype product in lithography technology is its transparent conductive film, NANOWEB®. The lithography division operates out of the Company's wholly owned U.S. subsidiary, Metamaterial Technologies USA Inc. ("MTI US"). MTI US can produce meter-long samples of NANOWEB®, at a small volumes scale, for industry customers/partners. Throughout 2020 and 2021, the Company has been ordering and upgrading its equipment at its California facility to efficiently supply NANOWEB® samples in larger volumes. The Company has recently installed its first roll-to-roll, NANOWEB® pilot scale production line at its Pleasanton, California facility. The line is configured for 300mm-wide rolls of substrate. All the equipment passed factory acceptance tests prior to delivery and installation, and the line is currently being optimized.

There are six NANOWEB®-enabled products and applications that are currently in early stages of development including:

- NANOWEB® for Transparent EMI Shielding
- NANOWEB® for Transparent Antennas
- NANOWEB® for 5G signal enhancement
- NANOWEB® for Touch Screen Sensors
- NANOWEB® for Solar cells
- NANOWEB® for Transparent Heating to de-ice and de-fog

More details of these products and applications can be found in META's EDGAR filings and on META's website at www.metamaterial.com.

The Company has entered into a collaboration agreement with Crossover Solutions Inc. to commercialize the NANOWEB® enabled products and applications for the automotive industry and with ADI Technologies to help secure contracts with the US Department of Defense.

Nano-optic structures and color-shifting foils - the Company recently acquired Nanotech Security Corp. "Nanotech" which specializes in designing, originating, recombining, and mass-producing nanotechnology-based films with application for a wide variety of products and markets. Nanotech develops and produces nano-optic structures and color-shifting foils used in authentication and brand protection applications across a wide range of markets including banknotes, secure government documents, and commercial branding. The Company's nano-optic security technology platforms include:

- *KolourOptik®*, a patented visual technology that is exclusive to the government and banknote market and combines sub-wavelength nanostructures and microstructures to create modern overt security features with a unique and customizable optical effect. *KolourOptik®* pure plasmonic color pixels produce full color, 3D depth, and movement used in security stripes and threads that are nearly impossible to replicate.
- *LiveOptik™*, a patented visual technology that utilizes innovative nano-optics one tenth the size of traditional holographic structures to create next generation overt security features customized to Nanotech's customers' unique requirements. *LiveOptik™* delivers multi-color, 3D depth, movement and image switches for secure brand protection stripes, threads and labels that are nearly impossible to replicate.
- *LumaChrome™* optical thin film security features are manufactured using precision engineered nanometer thick layers of metals and ceramics to form filters designed to uniquely manipulate visible and non-visible light. This unique manipulation of light properties is used to create specialized security features in the form of threads, stripes, and patches that are applied to banknotes and other secure documents. By using sophisticated electron beam and sputtered deposition methods, Nanotech precisely controls the construction and inherent properties to provide custom color-shifting solutions. An individual looking at these threads, stripes and patches sees an obvious color shift (e.g. green to magenta) when the document or bank note is tilted or rotated

META's Wireless Sensing platform uses infrared and radio frequency (RF) transmitters and receivers to collect and measure a variety of biological information enabling non-invasive and safe medical diagnostics. The platform requires the ability to cancel reflections (anti-reflection) from the skin to reduce the natural impedance the skin provides to such signals and increase the Signal-to-Noise Ratio ("SNR") of certain diagnostic instruments used in conjunction with the platform. This reflection-cancelling requirement is satisfied using META's proprietary metamaterial films that employ patterned designs, printed on metal-dielectric structures on flexible substrates that act as anti-reflection (impedance-matching) coatings when placed over the human skin in combination with medical diagnostic modalities, such as MRI, ultrasound systems, non-invasive glucometers etc. The Company is developing a number of medical products that employ this proprietary technology. glucoWISE™, is in development as a completely non-invasive glucose measurement device. It is being developed first as a benchtop medical device product, followed by a portable, pocket-size product and ultimately as a wearable. In magnetic resonance imaging (MRI), increasing the SNR by orders of magnitude has been demonstrated to produce much higher resolution images with significant increases in imaging speed resulting in better patient throughput and potentially more accurate diagnoses in imaging clinics. For example, the Company is developing metaSURFACE™ (also known as radiWISE™) an innovation which allows an improvement in signal to noise ratio of up to 40 times for MRI scans. The metaSURFACE™ device consists of proprietary non-ferrous metallic and dielectric layers that are exactly designed to interact (resonate) with radio waves increasing the SNR. META is also researching the use of its Radio Wave Imaging technology in breast cancer and stroke diagnosis.

The Company is developing wireless sensing and radio wave imaging applications from its London, UK office and its newly established Athens, Greece office.

Oil and Gas operations

As part of the Arrangement Agreement with Torchlight Energy Resources, Inc. ("Torchlight") as mentioned in the following section, the Company acquired a group of oil and gas assets ("O&G assets") and had interest in them as follows:

- the Orogrande Project in Hudspeth County, Texas
- the Hazel Project in Sterling, Tom Green, and Irion Counties, Texas
- the Hunton wells in partnership with Kodiak in Central Oklahoma

The Company has classified these assets as assets held for sale pursuant to its commitment to sell or spin out the O&G assets prior to the earlier of (i) December 31, 2021 or (ii) the date which is six months from the closing of the Arrangement, or (iii) such later date as may be agreed between the Company and the individual appointed to serve as the representative of the holders of Series A Preferred Stock (the "Sale Expiration Date"). The Series A Preferred Stock will automatically be cancelled once the entitled dividends have been paid. See the description in Note 5, "Assets Held for Sale" of the financial statements included with this report for information and disclosure regarding these assets. See Item 1A, risk Factors for more information on these assets.

Customers

The Company's customers are OEM providers in multiple industries including aerospace, automotive, consumer electronics, communications, energy, banknote and brand security, and medical devices. The Company organizes its development and support efforts around these differentiated vertical markets to enable it to effectively penetrate these markets and to develop products specific to the needs of these OEM customers.

Marketing and Sales

The Company operates under a Business-to-Business model. Its marketing and sales functions are organized to support and grow this operating model. The Company utilizes a combination of field-based and in-house selling resources to promote and sell its more common off-the-shelf products and a vertical market focused Business Development group to develop and support long-term customer relationships in the vertical market of interest. The Company's marketing efforts are focused on technical education of its customer base regarding its products, support of a meaningful presence at trade shows and industry events and routine production of collateral materials to support its sales and business development efforts.

Manufacturing

The Company employs a hybrid model for manufacturing of our high-performance functional materials and nanocomposites.

The Company provides research scale production of its products in-house to its customers in its lithography and holography business areas. The Company is scaling up pilot scale production of its materials in its Pleasanton facility and Highfield Park facility. The Company has current capacity in its Thurso facility to produce its banknote security and brand security product at commercial scale and it is expanding this capacity. In certain instances where volume warrants, the Company will make available on a license basis, its equipment and proprietary processes to its customers or to third party contractors to product its products for their needs.

The Company is constantly improving and investing in its manufacturing capabilities and the associated quality control and resource planning infrastructure. The Company holds ISO9001 certification for its Highfield Park facility and it is pursuing additional certifications in its Thurso facility.

Research And Development

The Company operates in a rapidly evolving industry subject to significant technological change and new product introductions and enhancements. The Company believes that its continued commitment to research and development is a critical element of ability to introduce new and enhanced products and technologies. The Company has historically invested more than forty percent (40%) of its operating expenses in its research and development efforts and these activities are integral to maintaining and enhancing our competitive position. The Company also increasingly seeks to deploy its resources to solve fundamental challenges that are both common to, and provide competitive advantage across, its high-performance functional materials and nanocomposites.

The Company believes that its success depends in part on its ability to achieve the following in a cost-effective and timely manner:

- enable its OEM customers to integrate its functional films into their products;
- develop new technologies that meet the changing needs of the vertical markets it has chosen to pursue;
- improve its existing technologies to enable growth into new application areas; and expand its intellectual property portfolio

Intellectual Property

During 2021, the Company has expanded its patents and trademarks portfolio significantly in a wide range of applications including holography, lithography, wireless sensing technology and nano-optic structures. In addition to META's previous portfolio of 126 patents, the Company acquired more than 23 patents from Interglass Technology AG and 98 patents from the Nanotech acquisition. The Company believes that its combination of patents and additional IP that is being held confidential by way of multiple trade secrets provides the Company with an important competitive advantage, marketing benefits, and licensing revenue opportunities.

Regulation

The Company is subject to significant regulation by local, state, federal and international laws in all jurisdictions in which it operates. Compliance with these requirements can be costly and time consuming. The Company believes that its operations, products, services, and actions substantially comply with applicable regulations in all jurisdictions. However, the risk of non-compliance cannot be eliminated and therefore there is no assurance that future costs related to these regulations will not be incurred. There is also the possibility that regulations will be retroactively applied, interpreted, or applied differently to the Company's operations, products, services, and actions which will require significant time and resources.

Human Capital Resources

As of February 28, 2022, the Company had 130 employees. Approximately 90% of its employees are located in Canada and the United States. Of the total workforce, 48 employees are involved in research and development; 28 employees are involved in operations, manufacturing, service and quality assurance; and 54 employees are involved in sales and marketing, finance, information technology, general management and other administrative functions.

Available Information

The Company's Annual Reports on Form 10-K, Quarterly Reports on Form 10-Q, Current Reports on Form 8-K and amendments to those reports are accessible free of charge on its website at www.metamaterial.com as soon as reasonably practicable after the Company electronically files such material with, or furnishes it to, the SEC. The SEC also maintains an internet site that contains reports, proxy and information statements and other information regarding the Company's filings at www.sec.gov. The reference to the Company's website does not constitute incorporation by reference of the information contained at the site.

Business Combinations

Torchlight RTO

On December 14, 2020, the Company (formerly known as "Torchlight Energy Resources, Inc." or "Torchlight") and its subsidiaries, Metamaterial Exchangeco Inc. (formerly named 2798832 Ontario Inc., "Canco") and 2798831 Ontario Inc. ("Calco"), entered into an Arrangement Agreement (the "Arrangement Agreement") with Metamaterial Inc. ("MMI"), an Ontario corporation headquartered in Nova Scotia, Canada, to acquire all of the outstanding common stock of MMI by way of a statutory plan of arrangement (the "Arrangement") under the Business Corporations Act (Ontario), on and subject to the terms and conditions of the Arrangement Agreement (the "Torchlight RTO"). On June 25, 2021, the Company implemented a reverse stock split, changed its name from "Torchlight Energy Resources, Inc." to "Meta Materials Inc." and changed its trading symbol from "TRCH" to "MMAT". On June 28, 2021, following the satisfaction of the closing conditions set forth in the Arrangement Agreement, the Arrangement was completed.

On June 28, 2021, and pursuant to the completion of the Arrangement Agreement, the Company began trading on the NASDAQ under the symbol "MMAT" while MMI common stock was delisted from the Canadian Securities Exchange ("CSE"). At the same time, Metamaterial Exchangeco Inc., a wholly owned subsidiary of META, started trading under the symbol "MMAX" on the CSE. Certain previous shareholders of MMI elected to convert their common stock of MMI into exchangeable shares in Metamaterial Exchangeco Inc. These exchangeable shares, which can be converted into common stock of META at the option of the holder, are similar in substance to common shares of META and have been included in the determination of outstanding common shares of META.

For accounting purposes MMI, the legal subsidiary, has been treated as the accounting acquirer and the Company, the legal parent, has been treated as the accounting acquiree. The transaction has been accounted for as a reverse acquisition in accordance with ASC 805 *Business Combination*. Accordingly, these consolidated financial statements are a continuation of MMI consolidated financial statements prior to June 28, 2021 and exclude the balance sheets, statements of operations and comprehensive loss, statement of changes in stockholders' equity and statements of cash flows of Torchlight prior to June 28, 2021. See note 3 for additional information.

On August 5, 2021, the Company announced the signing of a definitive agreement to indirectly acquire Nanotech. On October 5, 2021, a wholly owned subsidiary of META purchased 100% of Nanotech's common stock at CA\$1.25 per share. In addition, the transaction price included the settlement of certain Nanotech share awards outstanding immediately prior to the closing of the agreement, including the repurchase and cancellation of 303,391 Nanotech restricted share units ("RSU") at a purchase price of CA\$1.25 per RSU and the settlement of 4,359,000 Nanotech in-the-money stock options at a purchase price equal to CA\$1.25 per option, less the exercise price thereof. The consideration payable to securityholders under the arrangement was payable in cash, resulting in a total purchase price of \$71.6 million (CA\$90.8 million).

Nanotech is incorporated under the laws of British Columbia, Canada. Nanotech's head office is located at #505 - 3292 Production Way, Burnaby, BC, Canada V5A 4R4. In addition, Nanotech owns and operates a manufacturing facility located in Thurso, Quebec.

Item 1A. Risk Factors.

The following factors could materially affect META's business, financial condition or results of operations and should be carefully considered in evaluating the Company and its business, in addition to other information presented elsewhere in this report.

Risks That Could Affect the Company's Financial Condition

Limited Operating History

The Company has a limited operating history, which can make it difficult for investors to evaluate the Company's operations and prospects and may increase the risks associated with investment in the Company.

The Company has incurred recurring consolidated net losses since its inception and expects its operating costs to continue to increase in future periods as it expends substantial financial and other resources on, among other things, business and headcount expansion in operations, sales and marketing, research and development, and administration as a public company. These expenditures may not result in additional revenues or the growth of the Company's business. If the Company fails to grow revenues or to achieve profitability while its operating costs increase, its business, financial condition, results of operations and growth prospects will be materially, adversely affected.

The Company is expected to be subject to many of the risks common to early-stage enterprises for the foreseeable future, including challenges related to laws, regulations, licensing, integrating and retaining qualified employees; making effective use of limited resources; achieving market acceptance of existing and future products; competing against companies with greater financial and technical resources; acquiring and retaining customers; and developing new solutions; and challenges relating to identified material weaknesses in internal control.

Access to Capital

The Company believes that current working capital will be sufficient to continue its business for at least the next twelve months. Should the Company's costs and expenses prove to be greater than it currently anticipates, or should it change its current business plan in a manner that will increase or accelerate its anticipated costs and expenses, such as through the acquisition of new products, the depletion of its working capital could be accelerated. The Company presently has access to approximately one hundred and twelve million dollars of new funding through its existing At the Market S-3 Shelf Registration (ATM). The Company believes that this funding is sufficient to enable it to fund its current working capital needs well into 2024.

The Company may pursue sources of additional capital through various financing transactions or arrangements, including joint venturing of projects, debt financing, equity financing, or other means. The Company may not be successful in identifying suitable financing transactions in the time period required or at all, and it may not obtain the capital it requires by other means.

The Company's ability to obtain financing, if and when necessary, may be impaired by such factors as the capital markets and its limited operating history.

Any additional capital raised through the sale of equity may dilute the ownership percentage of the Company's stockholders. Raising any such capital could also result in a decrease in the fair market value of its equity securities because its assets would be owned by a larger pool of outstanding equity. The terms of securities the Company issues in future capital transactions may be more favorable to its new investors, and may include preferences, superior voting rights and the issuance of other derivative securities, and issuances of incentive awards under equity employee incentive plans, which may have a further dilutive effect.

The Company may incur substantial costs in pursuing future capital financing, including investment banking fees, legal fees, accounting fees, securities law compliance fees, printing and distribution expenses and other costs. The Company may also be required to recognize non-cash expenses in connection with certain securities it may issue, which may adversely impact our financial condition.

Currency Fluctuations

The Company's revenues and expenses are denominated in US dollars, Canadian dollars, EURO, and Great British Pounds, and therefore are exposed to significant currency exchange fluctuations. Recent events in the global financial markets have been coupled with increased volatility in the currency markets. Fluctuations in the exchange rate between the US dollar, the Canadian dollar and the Great British Pounds may have a material adverse effect on the Company's business, financial condition, and operating results. The Company may, in the future, establish a program to hedge a portion of its foreign currency exposure with the objective of minimizing the impact of adverse foreign currency exchange movements. With appropriate risk management and oversight this may be able to offset future risk, however a hedging strategy will result in additional operating costs.

Costs of Maintaining a Public Listing

As a publicly traded company, there are costs associated with legal, accounting, and other expenses related to regulatory compliance. Securities legislation and the rules and policies of the NASDAQ require listed companies to, among other things, adopt corporate governance and related practices, and to continuously prepare and disclose material information, all of which add to a company's legal and financial compliance costs. The Company may also elect to devote greater resources than it otherwise would have on communication and other activities typically considered important by publicly traded companies.

Risks That Could Have a Material Adverse Effect on the Company's Business

Customer Concentration

The Company relies on a few customers for a significant portion of its revenues. For the year ended December 31, 2021, the Company had 3 customers that accounted for \$3,307,914 or 81% of total revenue. For the year ended December 31, 2020, the Company had 3 customers that accounted for \$807,912 or 72% of total revenue.

The Company currently derives a significant portion of its revenue from contract services between its wholly-owned subsidiary, Nanotech, and a G10 central bank. The Company is developing a new security feature under a framework contract with this customer. There can be no assurance that this project will be successful, or that will result in long-term production revenue for this security feature.

Risk of not developing new products, applications, and end markets for the Company's products

The Company's future success will depend in part on its ability to generate sales of its products as well as generating development revenue. Current and potential customers may have substantial investment in, and know-how related to the Company's technologies. Customers may be reluctant to change from incumbent suppliers or cease using their own solutions, or the Company's products may miss the design and procurement cycles of its customers. Many target markets have historically been slow to adopt new technologies. These markets often require long testing and qualification periods or lengthy government approval processes before admitting new suppliers or adopting new technologies.

Introduction of new products and product enhancements will require that the Company effectively transfer production processes from research and development to manufacturing and coordinate efforts with those suppliers to achieve increased production volume rapidly. If we are unable to implement this strategy to develop new applications and end markets for products or develop new products, the business, financial condition, results of operations and growth prospects could be materially adversely affected. In addition, any newly developed or enhanced products may not achieve market acceptance or may be rendered obsolete or less competitive by the introduction of new products by other companies.

Research and Market Development

Although the Company, itself and through its investments, is committed to researching and developing new markets and products and improving existing products, there can be no assurances that such research and market development activities will prove profitable or that the resulting markets and/or products, if any, will be commercially viable or successfully produced and marketed. A failure in the demand for products to materialize as a result of competition, technological change or other factors could have a material adverse effect on the business, results of operations and financial condition of the companies in which the Company has or will invest in, and consequently, on the Company.

Raw Material Source

The Company purchases its holographic raw materials from a tier 1 German manufacturer, which is a single source supplier. Disruption in supply from this supplier for any number of factors may cause a material adverse effect on Holography-related products.

Change in Laws, Regulations and Guidelines

The current and proposed operations of the Company are subject to a variety of laws, regulations and guidelines relating to production, the conduct of operations, transportation, storage, health and safety, medical device regulation and the protection of the environment. These laws and regulations are broad in scope and subject to evolving interpretations, which could require the Company to incur substantial costs associated with compliance or alter certain aspects of its business plan. In addition, violations of these laws, or allegations of such violations, could disrupt certain aspects of the Company's business plan and result in a material adverse effect on certain aspects of its planned operations.

The Company launched a new product metaAIR® in March 2019 to provide laser glare protection to pilots in the airline industry. Currently, metaAIR® is not subject to any Federal Aviation Administration regulations, however, metaAIR® may become subject to evolving regulation by governmental authorities as the metaAIR® market evolves further.

Integrating Past or Future Acquisitions

The Company has completed a number of acquisitions during its operating history. The Company has spent and may continue to spend significant resources identifying and pursuing future acquisition opportunities. Acquisitions involve numerous risks including: (1) difficulties in integrating the operations, technologies and products of the acquired companies; (2) the diversion of management's attention from other business concerns; and (3) the potential loss of key employees of the acquired companies. Failure to achieve the anticipated benefits of any prior and future acquisitions or to successfully integrate the operations of the acquired companies could have a material and adverse effect on the Company's business, financial condition, and results of operations. Any future acquisitions could also result in potentially dilutive issuance of equity securities, acquisition or divestiture-related write-offs or the assumption of debt and contingent liabilities.

Regulatory Approval

The Company's wireless sensing technology to enhance MRI and non-invasive glucoWISE® monitoring is under development. The Company has performed many experiments on animals and humans, and will continue to perform additional experiments as needed to continue the development of the related products. These products have not yet completed clinical trials/regulatory approval processes, and there can be no assurance that trials will be successful, or that approvals will be granted.

Insurance Coverage

The Company will require insurance coverage for a number of risks. Although management of the Company believes that the events and amounts of liability covered by its insurance policies will be reasonable, taking into account the risks relevant to its business, and the fact that agreements with users contain limitations of liability, there can be no assurance that such coverage will be available or sufficient to cover claims to which the Company may become subject. If insurance coverage is unavailable or insufficient to cover any such claims, the Company's financial resources, results of operations and prospects could be adversely affected.

Privacy and Data Security Concerns

Personal privacy, information security and data protection are significant issues worldwide. The regulatory framework governing the collection, use, and other processing of personal data and other information is rapidly evolving. The United States federal and various state and foreign governments have adopted or proposed requirements regarding the collection, distribution, use, security and storage of personally identifiable information and other data relating to individuals, and federal and state consumer protection laws are being applied to enforce regulations related to the online collection, use and dissemination of data.

The costs of compliance with and other burdens imposed by laws, regulations, standards and other actual or asserted obligations relating to privacy, data protection and information security may be substantial, and they may require the Company to modify its data processing practices and policies. Any actual or alleged noncompliance with any of these laws, regulations, standards, and other actual or asserted obligations may lead to claims and proceedings by governmental actors and private parties, and significant fines, penalties or liabilities.

Risk of Inability to Protect our Proprietary Technology and Intellectual Property Rights

The Company relies on a variety of intellectual property rights, including patents, trademarks, trade secrets, technical know-how and other unpatented proprietary information to protect the Company's technologies, products, product development and manufacturing activities from unauthorized use by third parties. The Company's patents do not cover all of its technologies, systems, products and product components and its competitors or others may design around its patented technologies. The Company cannot guarantee that it has entered into appropriate agreements with all parties that have had access to its trade secrets, know-how or other proprietary information to adequately protect all such information. The Company also cannot assure shareholders that those agreements will provide meaningful protection for its trade secrets, know-how or other proprietary information in the event of any unauthorized use or disclosure. The Company's trade secrets, know-how or other proprietary information could be obtained by third parties as a result of breaches of its physical or electronic security systems or its suppliers, employees or consultants could assert rights to its intellectual property.

Risk that Industry Targets will not Adopt the Company's Products

Holography Market-Aviation Industry

The Company launched its first product, a laser glare protection eyewear, named metaAIR[®], in March 2019, with a primary focus on the aviation market. The product offers unique performance and benefits over the competition and is the only industry-approved solution to date. The Company has co-developed this product with Airbus through a strategic partnership. Airbus further extended its support by introducing the Company to Satair, an Airbus-owned company, which became the global distribution partner for metaAIR[®] to the aviation market. Since 2016, Airbus and Satair have invested a total of \$2,000,000 for the product development and exclusive distribution rights to metaAIR[®]. Since the launch of metaAIR[®] in March 2019, the Company has sold fifty units to its distributor Satair. The Company is currently in the process of increasing its marketing and sales capacity.

Despite the Company's close collaboration with the Airbus Group, with the impact of COVID-19 there can be no assurance that the aviation market will accept the metaAIR[®] product at the expected market penetration rates and a slower than forecasted market acceptance may have a material adverse effect on Holography laser glare protection related products and the Company's financial position. The Company is pursuing ancillary markets outside of the aviation industry for its metaAIR[®] laser protection eyewear such as in law enforcement and defense.

Lithography Product and Market-Automotive

Lithography related products have not yet reached required manufacturing maturity. The first pilot scale roll-to-roll line is expected to be ready for low volume production during the second half of fiscal year 2022. Broader sales and production are expected to be launched in two to three years' time after successful completion of automotive product qualification and product introductions. META believes that the automotive market is a strategic high growth opportunity, however despite the Company's close collaboration with automotive

partners, there can be no assurance that the automotive market will accept the NANOWEB[®] product at the expected market penetration rates and a slower than forecasted market acceptance may have a material adverse effect on Lithography de-icing/de-fogging, transparent antenna and other related products and the Company's financial position.

Risks Related to Facilities and Human Resources

New Facility and Permits for Lithography Production

The Company is in the process of moving into a larger facility suitable to host the scale-up of production relating to Holography and Lithography. Lithography is a wet chemistry process which requires specific approvals from the local government to allow use of certain chemicals and their disposal.

Any delay in setting up the facility and receiving permits may impact launch and/or development of related products, and may have a material adverse effect on Lithography and Holography related products and consequently on the Company's financial position.

At present, the facility is expected to be complete during the second half of fiscal 2022.

Recruiting or Retaining Qualified Personnel.

The Company's ability to successfully manage and grow the business and to develop new products depends, in large part, on its ability to recruit and retain qualified employees, particularly highly skilled technical, sales, service, management, and key staff personnel. Competition for qualified resources is intense and other companies may have greater resources available to provide substantial inducements to offer more competitive compensation packages.

Conflicts of Interest

Certain of the Company's directors and officers are, and may continue to be, involved in other business ventures through their direct and indirect participation in corporations, partnerships, joint ventures, etc. that may become potential competitors of the technologies, products and services the Company intends to provide. Situations may arise in connection with potential acquisitions or opportunities where the other interests of these directors and officers conflict with or diverge from the Company's interests. In accordance with applicable corporate law, directors who have a material interest in or who are a party to a material contract or a proposed material contract with the Company are required, subject to certain exceptions, to disclose that interest and generally abstain from voting on any resolution to approve the contract. In addition, the directors and officers are required to act honestly and in good faith with a view to the Company's best interests. However, in conflict of interest situations, the Company's directors and officers may owe the same duty to another company and will need to balance their competing interests with their duties to the Company. Circumstances (including with respect to future corporate opportunities) may arise that may be resolved in a manner that is unfavorable to the Company.

Reliance on Management

The success of the Company is dependent upon the ability, expertise, judgment, discretion, and good faith of its senior management team. Any loss of the services of such individuals could have a material adverse effect on the Company's business, operating results, or financial condition.

Monitoring unauthorized use of the Company's intellectual property is difficult and costly. Unauthorized use of its intellectual property may have already occurred or may occur in the future. The Company's failure to identify unauthorized use or otherwise adequately protect its intellectual property could jeopardize its competitive advantage and materially adversely affect its business. Moreover, any litigation in connection with unauthorized use of its intellectual property could be time consuming, and the Company could be forced to incur significant costs and divert its attention and the efforts of its employees, which could, in turn, result in lower revenues and higher expenses, and it may not be successful in enforcing its intellectual property rights.

Risks Related to Oil and Gas Assets Held for Sale

Series A Preferred Stock Dividends

In connection with the Arrangement, the Company declared a dividend of shares of the Series A Preferred Stock to holders of record of its common stock as of June 24, 2021. The Series A Certificate of Designation entitles the holders of Series A Preferred Stock to receive dividends, or Asset Sale Dividends, comprised of the holder's pro rata portion of the proceeds from the sale of the O&G Assets in the event that the Company consummates one or more such transaction prior to the Sale Expiration Date. However, the Company may not be able to consummate any such transaction prior to such date on terms that will permit itself to pay such dividends, or at all.

Holders of Series A Preferred Stock are entitled to receive Asset Sale Dividends from any O&G Asset Sale. Prior to declaring or paying any dividend, the Company will deduct from the gross proceeds of an O&G Asset Sale various costs and expenses described in the Series A Certificate of Designation, which include, among others, (i) costs and expenses the Company incurs in connection with the applicable O&G Asset Sale transaction, (ii) costs the Company incurs following the consummation of the Arrangement with respect to the O&G Assets, (iii) taxes the combined company incurs in connection with the applicable O&G Asset Sale, the payment of dividends to the holders of Series A Preferred Stock, and the O&G Assets, (iv) liabilities the Company incurs in connection with the applicable O&G Asset Sale and (v) amounts paid or payable with respect to outstanding debt, if any. In addition, the Company will also withhold an amount of 10% of the proceeds from each O&G Asset Sale, (“the Holdback Amount”) to cover potential post-closing liabilities and obligations that the combined company may incur in respect of such transaction. If, after the deduction and withholding of these amounts, there are no net proceeds available for distribution to the holders of Series A Preferred Stock, then the Company will not declare or pay a dividend with respect to that transaction unless and until any remaining funds from the Holdback Amount are due to be distributed to the holders of Series A Preferred Stock through a dividend, or the Company receives additional net proceeds from such O&G Asset Sale (for example, as a result of post-closing payments or the release of escrowed funds).

In the event that any O&G Assets have not been sold in an O&G Asset Sale that is consummated prior to the Sale Expiration Date, the Company will, to the extent permitted by applicable law, declare a spin-off dividend to distribute beneficial ownership of the remaining O&G Assets to the holders of Series A Preferred Stock. However, if the combined company cannot effect such spin-off dividend in a manner that is exempt from registration under all applicable securities laws, the combined company will not declare the spin-off dividend and instead will use good faith, commercially reasonable efforts to preserve the value of the remaining O&G Assets or to distribute or provide the value of the remaining O&G Assets to the holders of Series A Preferred Stock, so long as the Company is not required to divert the attention of management or incur material expenses in excess of amount required to be reserved under the Arrangement Agreement. Thus, the Company, ultimately may not be able to deliver the value of any remaining O&G Assets to the holders of Series A Preferred Stock.

Orogrande and Hazel Projects: Risks and Uncertainties.

The Company is in the process of selling or spinning out the O&G Assets. Such dispositions may result in proceeds to Series A preferred shareholders in an amount less than they expect or less than the Company's assessment of the value of the assets. The Company does not know if it will be able to successfully complete such disposition on favorable terms or at all. In addition, the sale of these assets involves risks and uncertainties, including disruption to other parts of its business, potential loss of customers or revenue, exposure to unanticipated liabilities or result in ongoing obligations and liabilities to the Company following any such divestiture.

For example, in connection with a disposition, the Company may enter into transition services agreements or other strategic relationships, which may result in additional expenses. In addition, in connection with a disposition, the Company may be required to make representations about the business and financial affairs of the business or assets. The Company may also be required to indemnify the purchasers to the extent that its representations turn out to be inaccurate or with respect to certain potential liabilities. These indemnification obligations may require the Company to pay money to the purchasers as satisfaction of their indemnity claims. It may also take longer than expected to fully realize the anticipated benefits of this transaction, and those benefits may ultimately be smaller than anticipated or may not be realized at all, which could adversely affect the Company's business and operating results.

Since the Closing of the Merger, META has loaned \$15,000,000 to Torchlight, for use in relation to drilling activity required to maintain compliance with the lease obligations associated with the Company's O&G Assets. This loan is collateralized by Mr. Greg McCabe's interest in the Orogrande Project as well as by his current shares of Meta common stock. If the Company spins-out the O&G Assets, it may owe federal and/or state income taxes but will not receive any cash to pay such taxes and therefore may need to increase the debt relating to the O&G Assets at the spin-out. If the Company sells or spins-out the O&G Assets, there may be insufficient funds for us to be repaid on these debts. The O&G Assets may never be able to repay these debts to Meta and the collateral may also be insufficient.

Any of the foregoing could adversely affect the Company's financial condition and results of operations.

Oil and Gas Operations Liability or Damages

The oil and natural gas business involves a variety of operating hazards and risks such as well blowouts, pipe failures, casing collapse, explosions, uncontrollable flows of oil, natural gas or well fluids, fires, spills, pollution, releases of toxic gas and other environmental hazards and risks. These hazards and risks could result in substantial losses to the Company from, among other things, injury or loss of life, severe damage to or destruction of property, natural resources and equipment, pollution or other environmental damage, cleanup responsibilities, regulatory investigation and penalties and suspension of operations. In addition, the Company may be liable for environmental damages caused by previous owners of property purchased and leased by itself. In recent years, there has also been increased scrutiny on the environmental risk associated with hydraulic fracturing, such as underground migration and surface spillage or mishandling of fracturing fluids including chemical additives. This technology has evolved and continues to evolve and become more aggressive. The Company believes that new techniques can increase estimated ultimate recovery per well to over 1.0 million barrels of oil equivalent and have increased initial production two or three-fold. The Company believes that recent designs have seen improvement in, among other things, proppant per foot, barrels of water per stage, fracturing stages, and clusters per fracturing stage. As a result, substantial liabilities to third parties or governmental entities may be incurred, the payment of which could reduce or eliminate the funds available for exploration, development or acquisitions or result in the loss of the Company's properties and/or force it to expend substantial monies in connection with litigation or settlements. The Company currently has no insurance to cover such losses and liabilities, and even if insurance is obtained, it may not be adequate to cover any losses or liabilities. The occurrence of a significant event not fully insured or indemnified against could materially and adversely affect the Company's financial condition and operations. In addition, pollution and environmental risks generally are not fully insurable. The occurrence of an event not fully covered by insurance could have a material adverse effect on the Company's financial condition and results of operations.

Estimates of the Volume of Reserves and Value of Oil and Gas Assets

Estimates of reserves and of future net revenues prepared by different petroleum engineers and/or valuation firms may vary substantially depending, in part, on the assumptions made and may be subject to adjustment either up or down in the future. The Company's actual amounts of production, revenue, taxes, development expenditures, operating expenses, and quantities of recoverable oil and gas reserves may vary substantially from the estimates. Oil and gas reserve estimates are necessarily inexact and involve matters of subjective engineering judgment. In addition, any estimates of its future net revenues and the present value thereof are based on assumptions derived in part from historical price and cost information, which may not reflect current and future values, and/or other assumptions made by management that only represent our best estimates. If these estimates of quantities, prices and costs prove inaccurate, The Company may be unsuccessful in expanding our oil and gas reserves base with our acquisitions. Additionally, if declines in and instability of oil and gas prices occur, then write downs in the capitalized costs associated with any oil and gas assets it obtains may be required. Because of the nature of the estimates of the Company's reserves and estimates in general, reductions to our estimated proved oil and gas reserves and estimated future net revenues may not be required in the future, and/or that our estimated reserves may not present and/or commercially extractable. If the Company's reserve estimates are incorrect, it may be forced to write down the capitalized costs and the estimated value of our oil and gas properties as shown on our balance sheet.

Decommissioning Costs are Unknown and May be Substantial

The Company may become responsible for costs associated with abandoning and reclaiming wells, facilities and pipelines which it uses for production of oil and natural gas reserves. Abandonment and reclamation of these facilities and the costs associated therewith is often referred to as "decommissioning." The Company accrues a liability for decommissioning costs associated with its wells but have not established any cash reserve account for these potential costs in respect of any of our properties. If decommissioning is required before economic depletion of our properties or if the Company's estimates of the costs of decommissioning exceed the value of the reserves remaining at any particular time to cover such decommissioning costs, the Company may have to draw on funds from other sources to satisfy such costs. The use of other funds to satisfy such decommissioning costs could impair our ability to focus capital investment in other areas of our business.

Challenges to the Properties May Impact the Company's Financial Condition.

Title to oil and gas interests is often not capable of conclusive determination without incurring substantial expense. While the Company has made and intends to make appropriate inquiries into the title of properties and other development rights it has acquired and intends to acquire, title defects may exist. In addition, the Company may be unable to obtain

adequate insurance for title defects, on a commercially reasonable basis or at all. If title defects do exist, it is possible that the Company may lose all or a portion of our right, title and interests in and to the properties to which the title defects relate. If the property rights are reduced, the Company's ability to conduct exploration, development and production activities may be impaired. To mitigate title problems, common industry practice is to obtain a title opinion from a qualified oil and gas attorney prior to the drilling operations of a well.

Continuing Drilling Obligations Under Leases May Not be Met.

The leases for the Orogrande properties include additional drilling requirements for 2022 and 2023 which may require the Company to raise additional capital. The Company is intending to sell the leases in 2022 and transfer the ongoing obligations to the new owners, or spin out, the leases. If such a transfer is not completed in a timely manner in 2022, the Company may be forced to attempt to raise additional capital for this purpose or seek an extension from the lessor of the lease drilling obligations. The Company may be unable to raise additional funds on favorable terms. To the extent that the Company raises additional capital through the sale of equity or equity-linked securities, including convertible debt, or through our at-the-market offering (the ATM) or other offerings, the Company's shareholders' ownership interest will be diluted, and the terms may include liquidation or other preferences that adversely affect their rights as a stockholder. Incurring additional indebtedness would result in increased fixed payment obligations and could involve certain restrictive covenants, such as limitations on our ability to incur additional debt, limitations on our ability to acquire or license intellectual property rights and other operating restrictions that could adversely impact the Company's ability to conduct its business. The Company has no committed source of additional capital and if it is unable to raise additional capital in sufficient amounts or on terms acceptable to it, it may not be able to meet the additional drilling requirements and the leases will be lost.

The Company's Ability to Maintain its Rights Under the Leases is Dependent on Numerous Factors Outside of its Control.

The leased assets are held for sale. The Company's ability to attract capital to enable on-going compliance with the lease obligations depends upon numerous factors largely beyond our control. These factors include:

- oil, NGLs and natural gas prices;
- global supply and demand for oil, NGLs and natural gas;
- the overall state of the financial markets, including investor appetite for debt and equity securities issued by oil and natural gas companies and the effects of economic recessions or depressions;
- the ability to secure and maintain financing on acceptable terms;
- legislative, environmental and regulatory matters;
- oil and natural gas reservoir quality;
- the availability of drilling rigs, completions equipment and other facilities and equipment;
- the ability to access lands;
- the ability to access water for hydraulic fracturing operations;
- reliance on vendors, suppliers, contractors and service providers;
- shortages of sufficiently skilled labor, or labor disagreements resulting in unplanned work stoppages;
- changes to free trade agreements;
- inflation and other unexpected cost increases, including with respect to materials and labor;
- prevailing interest and foreign exchange rates;
- royalty and tax rates;
- physical impacts from adverse weather conditions and natural disasters;

- transportation and processing interruptions or constraints, including the availability and proximity of pipeline and processing capacity;
- technology failures; and accidents

Risks Related to Legal Matters

Litigation

The Company is currently subject to securities class action litigation and may be subject to similar or other litigation in the future, all of which will require significant management time and attention, result in significant legal expenses and may result in unfavorable outcomes, which may have a material adverse effect on the Company's business, operating results and financial condition, and negatively affect the price of its common stock.

The Company is, and may in the future become, subject to various legal proceedings and claims that arise in or outside the ordinary course of business. For example, the Company currently has securities class action complaints pending against itself, its chief executive officer, and its chief financial officer, asserting that they made false or misleading statements. The complaints seek monetary damages, costs and expenses. For more information, see "Item 3. Legal Proceedings" in this Annual Report on Form 10-K and "Note 28 – Commitments and Contingencies" of the Company's consolidated financial statements included elsewhere in this report.

The Company cannot predict the outcome of these proceedings or provide an estimate of potential damages, if any. The Company believes that the claims in the securities class actions are without merit and intend to defend against them vigorously. Regardless, failure by the Company to obtain a favorable resolution of the claims set forth in the complaints could require it to pay damage awards or otherwise enter into settlement arrangements for which its insurance coverage may be insufficient. Any such damage awards or settlement arrangements in current or future litigation could have a material adverse effect on the Company's business, operating results or financial condition. Even if plaintiffs' claims are not successful, defending against class action litigation is expensive and could divert management's attention and resources, all of which could have a material adverse effect on its business, operating results and financial condition and negatively affect the price of its common stock. In addition, such lawsuits may make it more difficult for the Company to finance its operations in the future.

Ongoing Government Investigation by the SEC

In September 2021, the Company received a subpoena from the Securities and Exchange Commission, Division of Enforcement, in a matter captioned *In the Matter of Torchlight Energy Resources, Inc.* The subpoena requests that the Company produces certain documents and information related to, among other things, the merger involving Torchlight Energy Resources, Inc. and Metamaterial Inc. The Company is cooperating and intends to continue to cooperate with the SEC's investigation. Investigations of this nature are inherently uncertain and their results cannot be predicted. Regardless of the outcome, the SEC Investigation has had and may continue to have an adverse impact on the Company because of legal costs, diversion of management resources, and other factors. The SEC Investigation could also result in reputational harm to the Company, which, among other things, may limit its ability to obtain new customers and enter into new agreements with its existing customers, or its ability to obtain financing, and have a material adverse effect on its current and future business, financial condition, results of operations and prospects.

Risks Related to Disclosures and Financial Reporting

Material Weaknesses in Disclosure Controls and Internal Controls over Financial Reporting

Management is responsible for establishing and maintaining adequate internal control over disclosure and financial reporting (as defined in Rule 13a-15(f) under the Exchange Act) and for evaluating and reporting on the effectiveness of our system of internal control. Effective internal controls are necessary for the Company to provide timely, reliable and accurate financial reports, identify and proactively correct any deficiencies, material weaknesses or fraud and meet our reporting obligations. As disclosed in Part II, Item 9A, Management identified material weaknesses in its disclosure controls and its internal controls over financial reporting during fiscal year 2021. Remediation efforts place a significant burden on management and add increased pressure on its financial reporting resources and processes. If the Company is unable to successfully remediate these material weaknesses in a timely manner, or if any additional material weaknesses in our internal control over disclosure or financial reporting are identified, the accuracy of our financial reporting and the Company's ability to timely file with the SEC may be adversely impacted. In addition, if the Company's remedial efforts are insufficient, or if additional material weaknesses or significant deficiencies in its internal controls occur in the future, the Company could be required to restate our financial statements, which could materially and adversely affect its business, results of operations and financial condition, restrict its ability to access the capital markets, require it to expend significant resources to correct the material weaknesses or deficiencies, subject the Company to regulatory investigations and penalties, harm its reputation, cause a decline in investor confidence or otherwise cause a decline in its stock price.

Item 1B. Unresolved Staff Comments.

None.

Item 2. Properties.

The Company's registered office is located at 85 Swanson Road, Boxborough, Massachusetts 01719, and its principal executive office is located at 1 Research Drive, Halifax, Nova Scotia, Canada.

The Company's principal facilities include the following:

Location	Lease expiration	Approximate size (sqft)	Primary functions
Boxborough, Massachusetts	September 30, 2023	4,414	Administration
Research Drive, Dartmouth, Nova Scotia	month-to-month	8,792	Administration, Research and Development, and Production
Highfield Park, Dartmouth, Nova Scotia	August 31, 2031	68,000	Administration, Research and Development, and Production
Pleasanton, California	September 30, 2026	19,506	Research and Development and Production
London, United Kingdom	October 19, 2022	742	Research and Development
Burnaby, British Columbia	April 30, 2025	7,860	Administration and Research and Development
Thurso, Quebec	Owned	105,000	Production and Research and Development
Maroussi, Athens	October 31, 2031	15,457	Research and Development
Steinhausen, Switzerland	June 30, 2022	1,335	Research and Development
Plano, Texas	July 31, 2022	3,299	Administration

The Company also acquired the following properties as part of the Torchlight RTO on June 28, 2021. Comparative figures in Item 2 refer to the financial information of Torchlight as the legal acquirer and not the accounting acquirer. Refer to note 5 in Item 8. "Financial Statements and supplementary data" for more details.

Investments in oil and gas properties during the years ended December 31, 2021 and 2020 are detailed as follows:

	2021	2020
Property acquisition costs	-	-
Development costs	\$ 14,805,511	\$ 3,472,281
Exploratory costs	-	-
Totals	\$ 14,805,511	\$ 3,472,281

All costs included above refers to investments in oil and gas properties incurred by Meta Materials Inc. (previously "Torchlight Resources Inc."), the legal acquirer, in the calendar years 2021 and 2020, and consequently, may not agree to the consolidated financial statements in Item 8 which is a continuation of the financial statements of Metamaterial Inc. ("MMI"), the accounting acquirer.

Property development costs presented above exclude interest capitalized into the full cost pool of \$141,048 in 2021 and \$2,353,700 in 2020.

The development costs for 2021 include work in the Orogrande Project in west Texas. No development costs were incurred by us for the Hazel or Oklahoma properties in 2021.

The development costs for 2020 include work in the Orogrande and Hazel Projects in west Texas. No development costs were incurred by us for Oklahoma properties in 2020.

Oil and Natural Gas Reserves

As of December 31, 2021, proved reserves were calculated by a third party Reserve Engineer related only to the Hazel Project. The total PV 10 value for the Hazel wells is \$2,897,000. Reference table below. The reserve calculation, as prepared by the Engineer, does not include consideration of the Company's obligation to assign revenue from the Hazel wells to Masterson Hazel Partners LPC ("MHP") totaling approximately \$5,000,000. The Company had granted MHP the option to acquire the Hazel Project in exchange for them conducting, and paying for, development activity sufficient to maintain the Hazel mineral leases in good standing. The Option Agreement provided that if MHP declined to exercise the option to acquire the property, they would be entitled to recover their cost of the development activity to the extent that the wells produced revenues beyond the date of the option's lapse until the total amount was reimbursed to them. MHP declined to exercise the option effective September 30, 2021.

Net cash received, after expenses, from the Hazel wells for 2021 for the period after the termination of the Option Agreement total \$147,490. These funds were received by the Company in early 2022 and were promptly transferred to MHP as the first revenue transferred pursuant to the obligation under the Option Agreement. This amount was recorded as a receivable as of December 31, 2021, with an offsetting payable to acknowledge the obligation.

Since the remaining obligation to reimburse MHP exceeds the PV 10 value computed by our reserve engineer the net value to the Company of reserves associated with the Hazel wells is \$Nil. Although no reserve value is attributable to the Company, we have presented a table below to disclose the reserve calculation detail.

As of December 31, 2020, the Company had no proved reserves. As of December 31, 2021, the Hazel Project consisted of two producing wells and their related leases and the Orogrande Project consists only of unevaluated properties in progress of development for future production. As of December 31, 2021 the Hazel Project has proved producing reserves and the Orogrande project has no proved nonproducing reserves. The Oklahoma properties are marginal producing wells which are not economic in the context of proved reserve value. The estimates of our 2021 proved reserves and the PV-10 set forth herein reflect estimated future gross revenue to be generated from the production of proved reserves, net of estimated production costs, using prices and costs under existing economic conditions. The amounts shown do not give effect to non-property related expenses, such as corporate general administrative expenses and debt service, future income taxes or to depreciation, depletion and amortization.

Category	December 31, 2021			December 31, 2021	
	Reserves			Future Net Revenue (M\$)	
	Oil (Bbls)	Gas (Mcf)	Total (BOE)	Total	Present Value Discounted at 10%
Proved Producing	152,000	0	152,000	\$ 4,317	\$ 2,897
Proved Undeveloped	0	0	0	\$ -	\$ -
Total Proved	152,000	0	152,000	\$ 4,317	\$ 2,897
Standardized Measure of Future Net Cash Flows Related to Proved Oil and Gas Properties					\$ -
Probable Undeveloped	0	0	0	\$ -	\$ -
Category	December 31, 2020			December 31, 2020	
	Reserves			Future Net Revenue (M\$)	
	Oil (Bbls)	Gas (Mcf)	Total (BOE)	Total	Present Value Discounted at 10%
Proved Producing	0	0	0	\$ -	\$ -
Proved Nonproducing	0	0	0	\$ -	\$ -
Total Proved	0	0	0	\$ -	\$ -
Standardized Measure of Future Net Cash Flows Related to Proved Oil and Gas Properties					\$ -
Probable Undeveloped				\$ -	\$ -

The increase in producing reserves from 2020 to 2021 from 0 to 152,000 BOE is related to a new producing well in the Hazel Project as well as bringing a prior well in the Hazel Project back on line after it had been shut in in 2019. All of this activity was performed and paid for by MHP. Reserve values as of December 31, 2021 are related to the two producing wells in the Hazel Project.

BOE equivalents are determined by combining barrels of oil with MCF of gas divided by six.

Since the Company has no remaining reserve value as of December 31, 2021 after consideration of the obligation to pass revenue through to MHP under the terms of the Option Agreement, and there was no reserve value at December 31, 2020, Standardized Measure disclosures are not presented here.

Due to the inherent uncertainties and the limited nature of reservoir data, both proved and probable reserves are subject to change as additional information becomes available. The estimates of reserves, future cash flows, and present value are based on various assumptions, including those prescribed by the SEC, and are inherently imprecise. Although we

believe these estimates are reasonable, actual future production, cash flows, taxes, development expenditures, operating expenses, and quantities of recoverable oil and natural gas reserves may vary substantially from these estimates.

Reserve Estimation Process, Controls and Technologies

The reserve estimates for 2021 for proved reserves, including PV-10 estimates, set forth above were prepared by PeTech Enterprises, Inc. for the Company's Hazel Project in Texas; no reserve estimates were prepared for the Oklahoma wells because they are marginally producing and are uneconomic for reserve calculation purposes. The calculations were prepared using standard geological and engineering methods generally accepted by the petroleum industry and in accordance with SEC financial accounting and reporting standards.

No reserve report has been prepared for 2020. The only properties that had measurable reserves at December 31, 2019 were sold on November 11, 2020 (effective November 1, 2020).

We do not have any employees with specific reservoir engineering qualifications in the company. We worked closely with PeTech Enterprises Inc. in connection with its preparation of our reserve estimates for 2021, including assessing the integrity, accuracy, and timeliness of the methods and assumptions used in this process.

PeTech Enterprises, Inc. ("PeTech"), who provided 2019, 2020 and 2021 reserve estimates for our properties, is a Texas based family owned oil and gas production and investment company that provides reservoir engineering, economics and valuation support to energy banks, energy companies and law firms as an expert witness. PeTech has been in business since 1982. Amiel David is the President of PeTech and the primary technical person in charge of the estimates of reserves and associated cash flow and economics on behalf of the company for the results presented in its reserves report to us. He has a PhD in Petroleum Engineering from Stanford University. He is a registered Professional Engineer in the state of Texas (PE #50970), granted in 1982, a member of the Society of Petroleum Engineers and a member of the Society of Petroleum Evaluation Engineers. A copy of the PeTech is attached to this Annual Report.

Proved Nonproducing Reserves

As of December 31, 2021, our proved nonproducing reserves totaled -0- barrels of oil equivalents (BOE) compared to -0- as of December 31, 2020.

At the end of 2021 and 2020 reserves did not include any value for proved undeveloped properties. This was due to the loss of the leases relating to the Hazel Project except for those leases on which the two producing wells are located, and we had no proved reserves on the Orogrande Project.

We made investments and development progress during 2021 to develop reserves in the Orogrande Project in the Permian Basin in West Texas. As of December 31, 2021, 14 test wells have been developed in the Orogrande Project.

Our current drilling plans, subject to sufficient capital resources and the periodic evaluation of interim drilling results and other potential investment opportunities, include drilling additional evaluation wells in the Orogrande Project to continue to derisk the project and obtain initial production from the development efforts.

Production, Price, and Production Cost History

Oklahoma

During the year ended December 31, 2021, we produced and sold 85 barrels of oil net to our interest at an average sale price of \$55.00 per bbl. We produced and sold 3,586 MCF of gas net to our interest at an average sales price of \$3.17 per MCF. Our average production cost including lease operating expenses and direct production taxes was \$18.54 per BOE. Our depreciation, depletion, and amortization expense was \$-0- per BOE.

During the year ended December 31, 2020, we produced and sold 278 barrels of oil net to our interest at an average sale price of \$16.13 per bbl. We produced and sold 2,012 MCF of gas net to our interest at an average sales price of \$1.20 per MCF. Our average production cost including lease operating expenses and direct production taxes was \$30.02 per BOE. Our depreciation, depletion, and amortization expense was \$130.68 per BOE.

Hazel

During the year ended December 31, 2021, 23,422 barrels of oil net to our interest were produced at an average sale price of approximately \$60.00 per bbl, although we received none of this revenue because all of it, after deducting expenses to produce the oil, was either received by MHP directly during the time that the Option Agreement was in effect or credited towards the recoupment of drilling costs incurred by MHP pursuant to the Option. We produced and sold Nil MCF of gas net to our interest.

For the year ended December 31, 2020 there was no production from the Hazel wells.

Quarterly Revenue and Production by State for 2021 and 2020 are detailed as follows:

Note that no production is included for the Hazel project. No revenue attributable to any production from the Hazel property is reported in the Company's consolidated financial statements for the year ended December 31, 2021 because all of it, after deducting expenses to produce the oil, was credited towards the recoupment of drilling costs incurred by MHP pursuant to the Option Agreement. Reference above discussion for production data related to the Hazel wells for 2021.

Property	Quarter	Oil Production {BBS}	Gas Production {MCF}	Oil Revenue	Gas Revenue	Total Revenue
Oklahoma	Q1 - 2021	28	711	\$ 1,166	\$ 1,305	\$ 2,471
Hazel (TX)	Q1 - 2021	0	0	\$ -	\$ -	\$ -
Total Q1-2021		28	711	\$ 1,166	\$ 1,305	\$ 2,471
Oklahoma	Q2 - 2021	28	1,212	\$ 1,692	\$ 1,814	\$ 3,506
Hazel (TX)	Q2 - 2021	0	0	\$ -	\$ -	\$ -
Total Q2-2021		28	1,212	\$ 1,692	\$ 1,814	\$ 3,506
Oklahoma	Q3 - 2021	29	441	\$ 1,818	\$ 1,146	\$ 2,964
Hazel (TX)	Q3 - 2021	0	0	\$ -	\$ -	\$ -
Total Q3-2021		29	441	\$ 1,818	\$ 1,146	\$ 2,964
Oklahoma	Q4 - 2021	0	1,222	\$ -	\$ 7,119	\$ 7,119
Hazel (TX)	Q4 - 2021	0	0	\$ -	\$ -	\$ -
Total Q4-2021		0	1,222	\$ -	\$ 7,119	\$ 7,119
2021 Year To Date		85	3,586	\$ 4,676	\$ 11,384	\$ 16,060
Oklahoma	Q1 - 2020	181	468	\$ 583	\$ 1,000	\$ 1,583
Hazel (TX)	Q1 - 2020	0	0	\$ -	\$ -	\$ -
MECO (TX)	Q1 - 2020	1,863	1,559	\$ 81,530	\$ 1,507	\$ 83,037

Total Q1-2020		<u>2,044</u>	<u>2,027</u>	<u>\$ 82,113</u>	<u>\$ 2,507</u>	<u>\$ 84,620</u>
Oklahoma	Q2 - 2020	28	448	\$ 774	\$ 156	\$ 930
Hazel (TX)	Q2 - 2020	0	0	\$ -	\$ -	\$ -
MECO (TX)	Q2 - 2020	1,389	747	\$ 44,223	\$ 324	\$ 44,547
Total Q2-2020		<u>1,417</u>	<u>1,195</u>	<u>\$ 44,997</u>	<u>\$ 480</u>	<u>\$ 45,477</u>
Oklahoma	Q3 - 2020	69	1,096	\$ 2,084	\$ 494	\$ 2,578
Hazel (TX)	Q3 - 2020	0	0	\$ -	\$ -	\$ -
MECO (TX)	Q3 - 2020	1,480	680	\$ 57,774	\$ 1,370	\$ 59,144
Total Q3-2020		<u>1,549</u>	<u>1,776</u>	<u>\$ 59,858</u>	<u>\$ 1,864</u>	<u>\$ 61,722</u>
Oklahoma	Q4 - 2020	0	0	\$ 1,042	\$ 773	\$ 1,815
Hazel (TX)	Q4 - 2020	0	0	\$ -	\$ -	\$ -
MECO (TX)	Q4 - 2020	435	0	\$ 9,837	\$ 5,519	\$ 15,356
MECO (Sold 11/1/20)	YTD ADJ	0	0	\$ (10,092)	\$ (5,519)	\$ (15,611)
Total Q4-2020		<u>435</u>	<u>0</u>	<u>\$ 787</u>	<u>\$ 773</u>	<u>\$ 1,560</u>
2020 Year To Date		<u>5,445</u>	<u>4,998</u>	<u>\$ 187,755</u>	<u>\$ 5,624</u>	<u>\$ 193,379</u>

Drilling Activity and Productive Wells

Combined Well Status

The following table summarizes development activity and Well Status as of December 31, 2021 and 2020:

Drilling Activity/Well Status	Cumulative Well Status at 12/31/2021		Developed 2021		Cumulative Well Status at 12/31/2020	
	Gross	Net	Gross	Net	Gross	Net
Development Wells:						
Productive -Texas (Hazel)	2.00	1.60	1.00	0.80	1.00	0.80
Productive - Oklahoma	2.00	0.40	-	-	2.00	0.40
Test Wells - Orogrande	14.00	9.08	5.00	3.39	9.00	5.69
Test Wells - Hazel	4.00	3.20	(1.00)	(0.80)	5.00	4.00
Exploration Wells:						
Productive	-	-	-	-	-	-
Dry	-	-	-	-	-	-
Total Drilled Wells:						
Productive -Texas	2.00	1.60	1.00	0.80	1.00	0.80
Productive - Oklahoma	2.00	0.40	-	-	2.00	0.40
Test Wells	18.00	12.28	4.00	2.59	14.00	9.69
Acquired Wells:						
Productive -Texas	-	-	-	-	-	-
Productive - Oklahoma	-	-	-	-	-	-
Total Wells:						
Productive -Texas	2.00	1.60	1.00	0.80	1.00	0.80
Productive - Oklahoma	2.00	0.40	-	-	2.00	0.40
Test Wells	18.00	12.28	4.00	2.59	14.00	9.69
Total	<u>22.00</u>	<u>14.28</u>	<u>5.00</u>	<u>3.39</u>	<u>17.00</u>	<u>10.89</u>
Well Type:						
Oil	-	-	-	-	-	-
Gas	-	-	-	-	-	-
Combination - Oil and Gas	4.00	2.00	1.00	0.80	3.00	1.20
Test Wells	18.00	12.28	4.00	2.59	14.00	9.69
Total	<u>22.00</u>	<u>14.28</u>	<u>5.00</u>	<u>3.39</u>	<u>17.00</u>	<u>10.89</u>

Our acreage positions at December 31, 2021 are summarized as follows:

Leasehold Interests - 12/31/2021	Total Acres		TRCH Interest Developed Acres		TRCH Interest Undeveloped Acres	
	Gross	Net	Gross	Net	Gross	Net
	Texas - Orogrande	134,000	89,110	-	-	134,000
Hazel Project	645	516	645	516	-	-
Oklahoma - Viking	640	192	640	192	-	-
Total	135,285	89,818	1,285	708	134,000	89,110

Current Projects

As of December 31, 2021, we had interests in three oil and gas projects: the Orogrande Project in Hudspeth County, Texas, the Hazel Project in Sterling, Tom Green, and Irion Counties, Texas, and the Hunton wells in partnership with Kodiak Ventures in central Oklahoma.

See the description under Note 5, "Assets held for sale," of the consolidated financial statements included with this report for information and disclosure regarding these projects, which description is incorporated herein by reference.

Item 3. Legal Proceedings.

On January 31, 2020, Torchlight Energy Resources, Inc. and its wholly owned subsidiaries Torchlight Energy, Inc. and Torchlight Energy Operating, LLC were served with a lawsuit brought by Goldstone Holding Company, LLC (Goldstone Holding Company, LLC v. Torchlight Energy, Inc., et al., in the 160th Judicial District Court of Dallas County, Texas). On February 24, 2020, Torchlight Energy Resources, Inc., Torchlight Energy, Inc., and Torchlight Energy Operating, LLC timely filed their answer, affirmative defenses, and requests for disclosure. The suit, which sought monetary relief over \$1 million, made unspecified allegations of misrepresentations involving a November 2015 participation agreement and a 2016 amendment to the participation agreement. Torchlight denied the allegations and asserted several affirmative defenses including but not limited to, that the suit is barred by the applicable statute of limitations, that the claims had been released, and that the claims were barred because of contractual disclaimers between sophisticated parties. Torchlight also asserted counterclaims for attorney fees. On January 14, 2021, Goldstone Holding Company, LLC dismissed its claims without prejudice, leaving Torchlight's counterclaims for attorney fees as the only pending claim in the case. On February 26, 2021, Torchlight filed a non-suit without prejudice on its counterclaims for attorney fees, leaving no claims in the case. The court signed a final order disposing of the entire case on March 5, 2021. However, Goldstone Holding Company, LLC asked the court to re-instate its claims, and a hearing was held on April 13, 2021. On June 16, 2021, the court signed an order denying the motion to reinstate Goldstone Holding Company's, LLC's claims, and the case is closed.

On April 30, 2020, The Company's wholly owned subsidiary, Hudspeth Oil Corporation, filed suit against Datalog LWT, Inc. d/b/a Cordax Evaluation Technologies. The suit seeks the recovery of approximately \$1.4 million in costs incurred as a result of a tool failure during drilling activities on the University Founders A25 #2 well that is located in the Orogrande Field. Working interest owner Wolfbone Investments, LLC, a company owned by the Company's former Chairman Gregory McCabe, is a co-plaintiff in that action. After the suit was filed, Cordax filed a mineral lien in the amount of \$104,500 against the Orogrande Field and has sued the operator and counterclaimed against Hudspeth for breach of contract, seeking the same amount as the lien. The Company has added the manufacturer of one of the tool components that the Company contends was a cause of the tool failure. It was later discovered that Datalog LWT, Inc. d/b/a Cordax Evaluation Technologies forfeited its charter to conduct business in the State of Texas by failing to timely pay its franchise taxes, and the Company added members of the board of directors to the case pursuant to the Texas Tax Code. It was recently disclosed that Datalog LWT, Inc. d/b/a Cordax Evaluation Technologies is the subsidiary of a Canadian parent company, Cordax Evaluation Technologies, Inc., who has also been added to the case. The suit, Hudspeth Oil Corporation and

Wolfbone Investments, LLC v. Datalog LWT, Inc. d/b/a Cordax Evaluation Technologies, was filed in the 189th Judicial District Court of Harris County, Texas. The Company's current Chairman of the Board filed a special appearance after being served with citation, alleging that he was a Canadian citizen with no meaningful ties to Texas. After discovery was conducted on this issue, the Company filed a nonsuit without prejudice for this Defendant, dismissing him from the case. The remaining parties are currently engaged in preliminary discovery and are scheduling mediation.

On March 18, 2021, Datalog LWT, Inc. d/b/a Cordax Evaluation Technologies filed a lawsuit in Hudspeth County, Texas seeking to foreclose its mineral lien against the Orogrande Field in the amount of \$104,500.01 and recover related attorney's fees. The foreclosure action, Datalog LWT Inc. d/b/a Cordax Evaluation Technologies v. Torchlight Energy Resources, Inc., was filed in the 205th Judicial District Court of Hudspeth County, Texas. The Company is contesting the lien in good faith and filed a Plea in Abatement on May 10, 2021, seeking a stay in the Hudspeth County lien foreclosure case pending final disposition of the related case currently pending in Harris County, Texas.

In September 2021, the Company received a subpoena from the Securities and Exchange Commission, Division of Enforcement, in a matter captioned *In the Matter of Torchlight Energy Resources, Inc.* The subpoena requests that the Company produces certain documents and information related to, among other things, the merger involving Torchlight Energy Resources, Inc. and Metamaterial Inc. The Company is cooperating and intends to continue to cooperate with the SEC's investigation. The Company can offer no assurances as to the outcome of this investigation or its potential effect, if any, on the Company or its results of operation.

On January 3, 2022, a putative securities class action lawsuit was filed in the U.S. District Court for the Eastern District of New York captioned Maltagliati v. Meta Materials Inc., et al., No. 1:21-cv-07203, against the Company, its Chief Executive Officer, its Chief Financial Officer, Torchlight's former Chairman of the Board of Directors, and Torchlight's former Chief Executive Officer. The complaint, purportedly brought on behalf of all purchasers of the Company's publicly traded securities from September 21, 2020 through and including December 14, 2021, asserts claims under Sections 10(b) and 20(a) of the Securities Exchange Act of 1934 (the "Exchange Act") arising primarily from a short-seller report and statements related to the Company's business combination with Torchlight. The complaint seeks unspecified compensatory damages and reasonable costs and expenses, including attorneys' fees.

On January 26, 2022, a similar putative securities class action lawsuit was filed in the U.S. District Court for the Eastern District of New York captioned McMillan v. Meta Materials Inc., et al., No. 1:22-cv-00463. This complaint names the same defendants and asserts the same claims on behalf of the same purported class as the Maltagliati action. The Company believes these actions (collectively, the "Securities Class Action") have no merit and intends to vigorously defend itself against these allegations.

On January 14, 2022, a shareholder derivative action was filed in the U.S. District Court for the Eastern District of New York captioned Hines v. Palikaras, et al., No. 1:22-cv-00248. The complaint names as defendants certain of the Company's current officers and directors, certain former Torchlight officers and directors, and the Company (as nominal defendant). The complaint, purportedly brought on behalf of the Company, asserts claims under Section 14(a) of the Exchange Act, contribution claims under Sections 10(b) and 21D of the Exchange Act, and various state law claims such as breach of fiduciary duties and unjust enrichment. The complaint seeks, among other things, unspecified compensatory damages in favor of the Company, certain corporate governance related actions, and an award of costs and expenses to the derivative plaintiff, including attorneys' fees.

Item 4. Mine Safety Disclosures.

Not Applicable.

PART II

Item 5. Market for Registrant's Common Equity, Related Stockholder Matters and Issuer Purchases of Equity Securities.

Market Information for Common Stock

The Company's common stock is quoted on the NASDAQ Stock Market LLC ("NASDAQ") under the symbol, "MMAT". As of December 31, 2021, the Company had outstanding common shares of 284,573,316 out of which there were 88,274,449 Exchangeable Shares held on the Canadian Securities Exchange ("CSE") under the symbol "MMAX".

The average daily volume of MMAT on NASDAQ from June 28, 2021 through December 31, 2021 was 14,258,758 .

The Exchangeable Shares were listed in connection with the completion of the Torchlight RTO where former holders of Metamaterial Inc.'s common shares (that were previously traded on the CSE) were entitled to receive 1.845 of the Company's common shares for each previously held common share of Metamaterial Inc. or in Exchangeable Shares of a wholly-owned subsidiary of META that reflect the same exchange ratio on issuance.

Holders of Record

As of December 31, 2021, there were 87 holders of record of the Company's common stock listed on NASDAQ. Because many shares of MMAT's common stock are held by brokers and other institutions on behalf of stockholders, the Company is unable to estimate the total number of beneficial owners of its common stock.

Holders of the Company's common stock are entitled to one vote for each share held of record on all matters submitted to a vote of stockholders.

Holders of the Company's common stock have no preemptive rights and no right to convert their common stock into any other securities. There are no redemption or sinking fund provisions applicable to the common stock.

Recent Sales of Unregistered Securities

The table below details all unregistered common shares issued by the Company during the fiscal year 2021. These shares are included in the issued and outstanding share count of the Company at December 31, 2021 and are adjusted to reflect the 1:2 reverse stock split of the Company's common stock effected immediately prior to the closing of the Arrangement agreement. With the exception of the shares issuable to Metamaterial holder in connection with the Arrangement Agreement, all other unregistered shares contained restrictions subjecting them to Rule 144.

All common shares referenced in the below table represents shares issued by Meta Materials Inc., previously Torchlight Energy Resources, Inc. ("Torchlight"), after adjustment of reverse stock split on June 25, 2021.

	<u>2021</u>
Exercised Warrants	1,619,547
Principal of converted notes	8,362,899
Payment in Kind	93,165
Service fees paid in stock	285,868
Shares issued to Metamaterial Inc. Shareholders*	<u>196,968,803</u>
Total Unregistered Shares	<u><u>207,330,282</u></u>

* Issued under an exemption from registration under Section 3(a)(10)

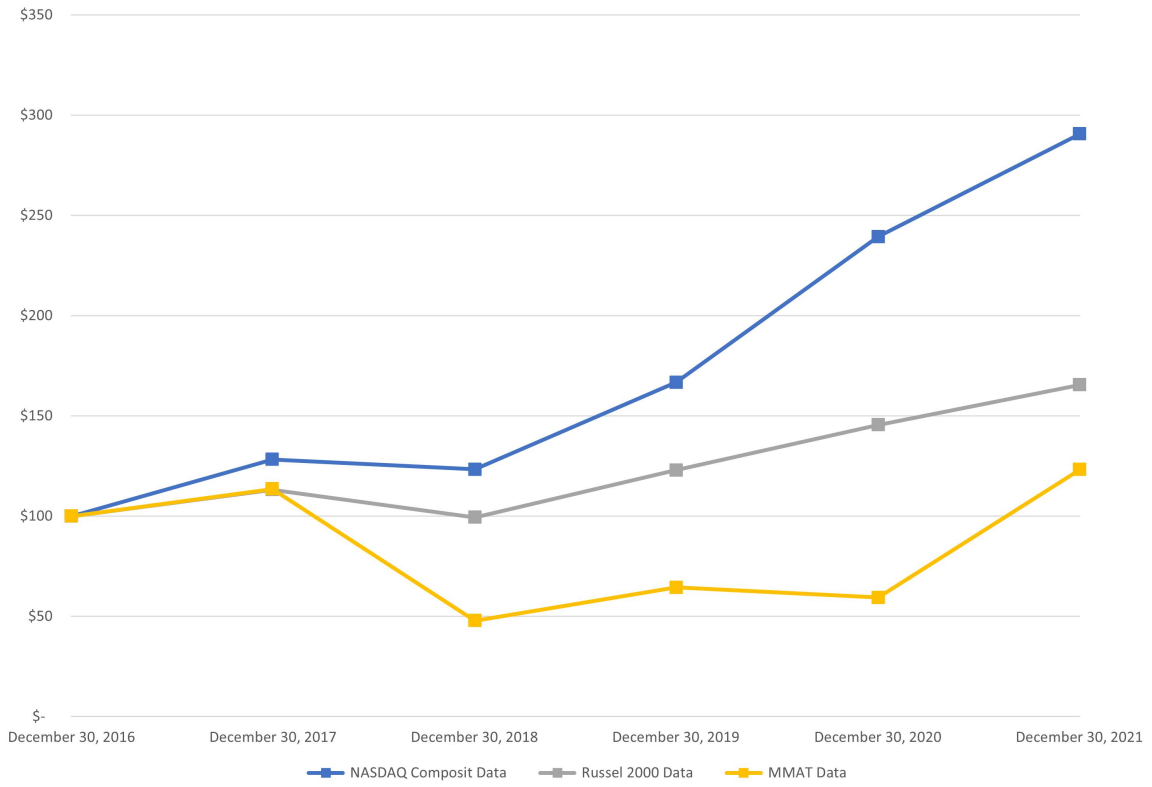
In addition to the common shares detailed above, in June 2021 the Company issued a total of 164,923,363 Series A Preferred Shares to shareholders of record of Torchlight as of June 24, 2021.

Stock Performance Graph

This performance graph shall not be deemed "soliciting material" or to be "filed" with the SEC for purposes of Section 18 of the Exchange Act, or otherwise subject to the liabilities under that Section, and shall not be deemed to be incorporated by reference into any filing of Meta Materials Inc., Inc. under the Securities Act of 1933, as amended, or the Exchange Act.

The following graph shows a comparison of the cumulative total return for the Company's common stock, the Russell 2000 (RUT), and the Nasdaq Composite Index (COMP) beginning December 30, 2016, and ending December 31, 2021. The graph assumes that \$100 was invested at the market close on beginning December 30, 2016 in the common stock of MMAT, COMP, and RUT. The stock price performance of the following graph is not necessarily indicative of future stock price performance.

Comparison of cumulative 5 year Total Return for Meta Materials Inc., Nasdaq Composite, and Russell 2000.



Item 6. [Reserved]

Item 7. Management’s Discussion and Analysis of Financial Condition and Results of Operations.

The following discussion and analysis of the Company's financial condition and results of operations should be read in conjunction with its consolidated financial statements and related notes, each included elsewhere in this Annual Report on Form 10-K. This discussion contains forward-looking statements based upon current plans, expectations and beliefs that involve risks and uncertainties. Our actual results and the timing of certain events could differ materially from those anticipated in or implied by these forward-looking statements as a result of several factors, including those discussed in the section titled “Risk Factors” included under Part I, Item 1A and elsewhere in this Annual Report. See “Note about Forward-Looking Statements” in this Annual Report.

This Report on Form 10-K contains references to the Company's trademarks and to trademarks belonging to other entities. Solely for convenience, trademarks and trade names referred to in this Report on Form 10-K, including logos, artwork and other visual displays, may appear without the ® or TM symbols, but such references are not intended to indicate, in any way, that the Company will not assert, to the fullest extent under applicable law, the Company's rights or the rights of the applicable licensor to these trademarks and trade names. We do not intend for the Company's use or display of other companies’ trade names or trademarks to imply a relationship with, or endorsement or sponsorship of the Company by any other companies.

OVERVIEW

Meta Materials Inc. (the “Company” or “META” or “Resulting Issuer”) is a developer of high-performance functional materials and nanocomposites specializing in metamaterial research and products, nanofabrication, and computational electromagnetics. The Company’s registered office is located at 85 Swanson Road, Boxborough, Massachusetts 01719, and its principal executive office is located at 1 Research Drive, Halifax, Nova Scotia, Canada.

Impact of COVID-19 on the Company’s Business

During March 2020, the COVID-19 outbreak was declared a pandemic by the World Health Organization. This has resulted in governments worldwide enacting emergency measures to combat the spread of the virus. In response, the Company’s management implemented a Work-From-Home policy for management and non-engineering employees in all of the Company’s locations for various periods through Fiscal 2020 and Fiscal 2021 as was required or deemed prudent by management. Engineering staff continued to work on given tasks and followed strict safety guidelines. As of November 2021, the majority of the Company’s employees had returned to the workplace. Although the Company’s supply chain has slowed down, the Company is currently able to maintain inventory of long lead items and is working with its suppliers to optimize future supply orders

COVID-19 has impacted the Company’s 2020 and 2021 sales of its metaAIR® laser protection eyewear product. Worldwide restrictions on travel are significantly impacting the airline industry and purchasing of metaAIR® eyewear has not been the primary spending focus of airline companies emerging from the financial impacts of COVID-19, however, the Company is pursuing sales in adjacent markets such as consumer, military and law enforcement. The situation is dynamic and the ultimate duration and magnitude of the impact of COVID-19 on the economy and financial effect specific to the Company cannot be quantified or known at this time.

BUSINESS AND OPERATIONAL HIGHLIGHTS

Throughout 2021, the Company’s activities were focused on its research and development efforts as well as expansion of its intellectual property estate. As the Company moves into 2022, new emphasis will be placed on investments in pilot scale manufacturing of NANOWEB® products, expansion of its production capacity in our banknote and brand security lines and more aggressive design, development and clinical testing of its array of medical products. These efforts represent an efficient approach to monetizing the Company's intellectual property assets.

Highfield Park facility

The Company leased approximately 53,000 square foot facility in Dartmouth, Nova Scotia, with the lease commencing on January 1, 2021. The facility will host the Company's holography and lithography R&D labs and manufacturing operations. The Company also amended this lease agreement on June 9, 2021 to expand the leased space by approximately 15,000 square feet, reduce the annual rent for the 10-year term of the lease and obtain from the landlord CA\$0.5 million in cash to fund ongoing tenant improvements. In exchange, the landlord received 993,490 shares of MMI common stock at CA\$3.40 per share. As at December 31, 2021, the Company has purchased equipment for approximately \$1.5 million as well as spent \$3.84 million on construction work. The Company will continue to incur additional construction and equipment costs through 2022.

Pleasanton facility

During 2021, the Company signed multiple lease amendments with its lessor in Pleasanton, California to expand the leased space of the facility in the United States to include additional space of 14,379 square feet as well as extend the duration of the leased spaces until September 30, 2026. The Company has spent approximately \$4.3 million on equipment including its first pilot scale roll-to-roll line which is expected to be ready for low volume production during the second half of fiscal year 2022. The Company has also spent \$1 million on leasehold improvements

Thurso facility

As part of the Nanotech acquisition, the Company acquired property plant and equipment with an estimated fair value of \$25.8 million including a 105,000 square foot facility in Thurso, Quebec. Approximately 35,000 square feet is being utilized for existing production capacity, and the remaining 70,000 square feet is available to expand output to facilitate future growth.

RESULTS OF OPERATIONS

Revenue and Gross Profit

	2021		2020		Year ended December 31,		2019	
	\$	\$	Change \$	%	\$	Change \$	%	
Product sales	407,915	2,905	405,010	13942 %	23,745	(20,840)	-88 %	
Development revenue	3,674,602	1,119,278	2,555,324	228 %	878,665	240,613	27 %	
Total Revenue	4,082,517	1,122,183	2,960,334	264 %	902,410	219,773	24 %	
Cost of goods sold	675,973	3,254	672,719	20674 %	9,172	(5,918)	-65 %	
Gross Profit	3,406,544	1,118,929	2,287,615	204 %	893,238	225,691	25 %	
Gross Profit percentage	83 %	100 %	-17 %		99 %	1 %		

Product sales include products, components, and samples sold to various customers. During the year ended December 31, 2021, the Company began earning revenue from development samples sold to certain customers. The \$0.4 million increase in product sales in 2021 compared to 2020 is due to:

- \$0.3 million in revenue from sale of development samples of NANOWEB®
- \$0.1 million in Nano-optic product sales in Q4 2021 generated by Nanotech subsequent to its acquisition by the Company
- Incidental revenue generated by product sales of holoOPTIX™ to different customers

There was minimal change in product sales between 2019 and 2020.

Development revenue is comprised of revenue from contract services and other development revenue. The increase in development revenue of \$2.6 million in 2021 compared to 2020 is primarily due to:

- \$1.7 million in revenue recognized by Nanotech from contract services subsequent to its acquisition by the Company. Nanotech currently derives a significant portion of its revenue from contract services with a confidential G10 central bank. In 2021, Nanotech entered into a development contract for up to \$41.5 million over a period of up to five years. These contract services incorporate both nano-optic and optical thin film technologies and are focused on developing authentication features for future banknotes.

- \$1 million in revenue recognized subsequent to achieving performance conditions of the Cooperation Framework Agreement with Covestro Deutschland AG.
- \$0.2 million decrease in other development revenue with lower research and development revenue generated from customers in 2021 compared to 2020.

The increase in development revenue of \$0.2 million in 2020, compared to 2019, is Primarily due to revenue recognized from statements of work with different customers.

The increase of \$0.7 million in cost of sales in 2021, compared to 2020, is primarily due to \$0.17 million in cost of sales incurred by Nanotech subsequent to its acquisition by the Company, as well as \$0.16 million in cost of sales incurred in generating other product sales. There was minimal decrease in cost of sales in 2020 compared to 2019.

Operating expenses

	Year ended December 31,							
	2021	2020	Change		2019	Change		
	\$	\$	\$	%	\$	\$	\$	%
Operating Expenses								
Selling & Marketing	2,267,354	1,064,659	1,202,695	113 %	1,125,719	(61,060)		-5 %
General & Administrative	29,699,601	6,707,858	22,991,743	343 %	4,819,737	1,888,121		39 %
Research & Development	9,497,427	4,102,791	5,394,636	131 %	3,825,194	277,597		7 %
Total operating expenses	<u>41,464,382</u>	<u>11,875,308</u>	<u>29,589,074</u>	249 %	<u>9,770,650</u>	<u>2,104,658</u>		22 %

The increase in selling and marketing expenses in 2021, compared to 2020, is primarily due to:

- \$0.6 million increase in salaries and benefits due to:
 - o \$0.2 million in salaries and benefits costs incurred by Nanotech subsequent to its acquisition by the Company.
 - o \$0.4 million increased cost for new hires in 2021 as part of the Company's expansion and building a sales and marketing team.
- \$0.2 million increase in consulting fees for market research and various investor relations campaigns as the Company sought to list on the NASDAQ.
- \$0.2 million increase in trade shows and travel and entertainment due to the market rebound after COVID-19 and reopening of trade shows. The Company participated in global tradeshows including AWE in USA and Asia for augmented reality ("AR") and 5G networks, Photonics West for holoOPTIX and AR, CES for various industries and technologies such as 5G networks, augmented reality, consumer electronics, automotive, and medical applications.

There was a minimal decrease in selling and marketing expenses in 2020 compared to 2019.

The increase in general and administrative expenses in 2021, compared to 2020, is primarily due to:

- \$5.0 million increase in legal and audit expenses, primarily resulting from costs associated with the Torchlight reverse acquisition ("RTO") and Nanotech acquisition, as well as costs associated with listing on the NASDAQ.
- \$6.2 million increase in consulting expenses primarily due to:
 - o \$4.1 million of expenses relating to the management of, and maintenance of the Oil and Gas assets ("O&G assets") acquired via the Torchlight RTO, including \$3.1 million paid to consultants in the form of warrants as well as \$0.9 million paid in cash.

- o \$1.2 million in advisory fees relating to the acquisition of Nanotech.
- \$3.0 million increase in salaries and benefits primarily due to:
 - o \$2.0 million increase due to incurring an additional \$1.1 million in salaries expense for general headcount expansion in 2021 as well as recording accrued bonuses of \$0.9 million.
 - o \$0.9 million in salaries expenses in relation to management of, and maintenance of the O&G assets acquired via the Torchlight RTO.
- \$3.9 million increase in investor related expenses due to:
 - o \$2.7 million warrants and RSUs issued to non-employee consultants in 2021. The fair value of warrants was calculated based on the Monte Carlo simulation valuation technique. The fair value of RSUs was calculated using the grant date share price. Refer to note 14 in Item 8. "Financial Statements and supplementary data" for more details.
 - o \$1.0 million in other expenses in relation to stock market support, investor communication and holding an annual stockholders meeting.
- \$1.6 million increase in rent and utilities due to the new lease for the Company's Highfield Park facility in Nova Scotia, Canada, the expansion of the Pleasanton facility in California, the opening of new administrative locations in Boxborough, Massachusetts and Plano, Texas, and new research and development office in Athens, Greece.
- \$1.6 million increase in insurance costs due to the increased insurance requirements in the US resulting from the Company's NASDAQ listing.
- \$1.7 million increase in depreciation, amortization and impairment expense.

The increase in general and administrative expenses in 2020, compared to 2019, is primarily due to:

- \$1.1 million increase in legal and audit fees for work related to the preparation for the Torchlight RTO and the closing of the CPM RTO, \$0.2 million increase in investment banking services, and \$0.2 million increase in investor related expenses due to preparation for the acquisition of Torchlight.
- \$0.2 million increase in rent and utilities

The increase in research and development expenses in 2021, compared to 2020, is primarily due to:

- \$3.1 million increase in salaries and benefits due to general headcount expansion.
- \$1.1 million due to R&D materials purchases.
- \$0.6 million increase in IT & software, dues and subscriptions, rent & utilities as well as travel and entertainment expenses.

The increase in research and development expenses in 2020, compared to 2019, is primarily due to \$0.3 million increase in consulting expenses.

Other expense

	Year ended December 31,						
	2021	2020	Change		2019	Change	
	\$	\$	\$	%	\$	\$	%
Other expense:							
Interest expense, net	(1,106,445)	(1,429,954)	323,509	-23 %	(1,135,922)	(294,032)	26 %
Loss on foreign exchange, net	(205,882)	(264,831)	58,949	-22 %	(316,261)	51,430	-16 %
Loss on financial instruments, net	(40,540,091)	(844,993)	(39,695,098)	4698 %	(280,319)	(564,674)	201 %
Other (loss) income, net	(11,939,068)	1,491,188	(13,430,256)	-901 %	2,081,398	(590,210)	-28 %
Total other expense	<u>(53,791,486)</u>	<u>(1,048,590)</u>	<u>(52,742,896)</u>	5030 %	<u>348,896</u>	<u>(1,397,486)</u>	-401 %

The \$0.2 million decrease in interest expense in 2021 compared to 2020 was due to the settlement of certain of the Company's convertible promissory notes and debentures, converted into MMI common stock during the year ended December 31, 2021, resulting in less interest expense being incurred.

The \$0.3 million increase in interest expense in 2020 compared to 2019 was due to a \$5 million loan obtained from BDC and issued in April 2020 as well as issuance of \$1 million in unsecured convertible debentures in the first half of fiscal year 2020.

The increase in loss on financial instruments in 2021, compared to 2020, was due to the re-measurement of convertible financial liabilities with carrying value of \$12.0 million at the conversion dates and a recognition of a \$40.2 million non-cash realized loss in the statements of operations and comprehensive loss. The increase in the fair value of convertible financial liabilities was due to the increase in the Company's stock price from CA\$0.66 as at December 31, 2020 to:

- CA\$3.01 at February 16, 2021 when the Company converted unsecured convertible promissory notes of \$4.4 million principal and interest at a share price of CA\$0.50 in accordance with the terms of the bridge financing;
- CA\$3.01 at February 16, 2021 when the Company converted unsecured convertible debentures of \$1.5 million principal and interest at share price of CA\$0.70 as per terms of the agreement and;
- CA\$3.80 at March 3, 2021 when the Company converted secured convertible debentures of \$4.3 million principal and interest at share price of CA\$0.70 pursuant to the terms of the agreement with Business Development Canada.

Each of the above referenced promissory notes and debentures included a conversion feature, exercisable at the option of the debt holder. For accounting purposes, each of these conversion features was an embedded derivative in the note or debenture. The Company elected to account for fluctuations in (a) the value of the liabilities driven by interest rate volatility and the Company's credit risk and (b) the embedded derivatives driven by fluctuations in the Company's common stock share price, using the fair value option. This accounting method calls for the Company to measure the fair value of the convertible financial liabilities at each balance sheet date and to record any non-cash adjustments relating to instrument-specific credit risk in other comprehensive income, and non-cash adjustments relating to other factors in the statements of operations. If, as was the case for the liabilities described above, the debt is converted, the valuations and any adjustments are to be recorded as of the date of such conversion.

The fair value option also provides that the total revaluation adjustment, in this case \$40.2 million, be recorded in common stock and additional paid in capital along with the \$10.2 million principal and interest portion, resulting in an increase to stockholders' equity despite the recording of the \$40.2 million loss in the statement of operations.

The recorded loss is a non-cash expense. The creditors of the Company exchanged their secured and unsecured debt for common stock of the Company at conversion prices that were established at the time the instruments were created and, at which time, represented a conversion price close to or higher than the then market price of the common stock. Had the Company been permitted to pay off the debts in cash at the time of conversion, fewer shares would have been required to be issued and a lower loss would have been recorded.

However, the instruments prevented any pre-payment of the debts by the Company. The conversions had the beneficial effect of significantly reducing the Company's liabilities and eliminating broad-based security interests in all of the Company's assets previously held by the creditors.

The \$0.6 million increase in loss on financial instruments in 2020 compared to 2019 is primarily due to the re-measurement of convertible financial liabilities with carrying value of \$12.0 million at the conversion dates and a recognition of a \$0.8 million non-cash realized loss in the statements of operations and comprehensive loss.

The \$13.0 million decrease in net other income in 2021, compared to 2020, is primarily due to costs incurred in relation to certain drilling activity carried out by the company at its Oil and Gas ("O&G") properties, to remain in compliance with all aspects of the Company's lease obligations and to satisfy the Continuous Drilling Clause ("CDC") with University Lands. The Company was successful in maintaining lease compliance and is moving forward with the planned spin-out of the O&G assets.

The \$0.6 million decrease in other income in 2020 compared to 2019 was primarily due to the following:

- \$0.4 million decrease in recognition of the fair value of the interest free component of the funding obligation.
- \$0.6 million decrease in recognition of fair value gain on the ACOA loans.
- Offset by a \$0.4 million increase in government assistance.

Deferred Tax recovery

	Year ended December 31,						
	2021	2020	Change		2019	Change	
	\$	\$	\$	%	\$	\$	%
Income tax recovery	852,063	193,710	658,353	340 %	83,549	110,161	132 %

The Company records deferred income tax liabilities for some of its foreign subsidiaries in Canada and United Kingdom. The increase in income tax recovery in 2021, compared to 2020, was driven by:

- an increase in accumulated losses, as well as changes in foreign exchange rates, in the Company's foreign subsidiary in United Kingdom.
- an increase in accumulated losses, intangibles amortization and changes in foreign exchange rates in Nanotech securities, the Company's wholly owned subsidiary, pursuant to its acquisition on October 5, 2021.

The increase in income tax recovery in 2020, compared to 2019, was driven by:

- an increase in accumulated losses, as well as changes in foreign exchange rates, in the Company's foreign subsidiary in United Kingdom.

The Company has not yet been able to establish profitability or other sufficient significant positive evidence, to conclude that its deferred tax assets are more likely than not to be realized. Therefore, the Company continues to maintain a valuation allowance against its deferred tax assets.

LIQUIDITY AND CAPITAL RESOURCES

Liquidity risk is the risk that the Company will not meet its financial obligations as they become due after use of currently available cash. The Company has a planning and budgeting process to monitor operating cash requirements, including amounts projected for capital expenditures, which are adjusted as input variables change. These variables include, but are not limited to, the ability of the Company to generate revenue from current and prospective customers, general and administrative requirements of the Company and the availability of equity or debt capital and government funding. As these variables change, the Company may be required to issue equity or obtain debt financing.

At December 31, 2021, the Company had cash and cash equivalents of \$46.6 million including \$0.8 million in restricted cash compared to \$1.4 million in cash and cash equivalents at December 31, 2020. In addition, and as of December 31, 2021, the Company holds short-term investments amounting to \$2.8 million (December 31, 2020: \$Nil).

For the year ended December 31, 2021, the Company's principal sources of liquidity included \$147 million of cash obtained through the Torchlight RTO, \$14.0 million in cash obtained through convertible debt, \$1.8 million in cash obtained through revenue and deferred revenue, and \$1.1 million in cash obtained through long-term and short-term interest-free debt.

The Company's primary uses of liquidity included the Nanotech acquisition of \$66.1 million net of cash acquired, salaries of \$10.3 million, legal and audit fees of \$6.3 million, professional service fees of \$11.0 million and, Oil and Gas drilling costs of \$12.5 million.

The Company believes that its existing cash will be sufficient to meet its working capital and capital expenditure needs as production capacity begins to come on line. The Company may need to raise additional capital to expand the commercialization of its products, fund its operations and further its research and development activities. Future capital requirements may vary materially from period to period and will depend on many factors, including the timing and extent of spending on research and development efforts, the capital expansion of its facilities in Halifax and California and the ongoing investments to support the growth of its business.

The Company also has the option to raise equity through issuing common stock of up to approximately \$112.5 million under an existing At-The-Market equity program where the Company's shares have been registered under the Securities Act of 1933, as amended, pursuant to the Registration Statement on Form S-3 (No. 333-256632) filed by the Company with the Securities and Exchange Commission (the "SEC") on May 28, 2021, and declared effective on June 14, 2021 (the "Registration Statement").

The following table summarizes META's cash flows for the periods presented:

	Year ended December 31,		
	2021	2020	2019
Net cash used in operating activities	(34,764,911)	(7,929,047)	(4,360,747)
Net cash provided by investing activities	65,144,545	2,412,991	(1,195,342)
Net cash provided by financing activities	15,655,863	6,333,827	5,328,559
Net increase in cash, cash equivalents and restricted cash	<u>46,035,497</u>	<u>817,771</u>	<u>(227,530)</u>

Net cash used in operating activities

During the year ended December 31, 2021, net cash used in operating activities of \$36.2 million was primarily driven by a \$91.0 million net loss reported for the year, and non-cash adjustments of \$51.7 million mainly due to \$40.5 million fair value losses on financial instruments, \$8 million stock based compensation and non-cash consulting fees, \$3.7 million in depreciation, amortization and impairment, and non-cash interest and accretion of \$1.1 million, along with other less material line items. Change in operating assets and liabilities totaled \$3.2 million.

During the year ended December 31, 2020, net cash used in operating activities of \$7.9 million was primarily driven by \$11.6 million of net loss reported for the year, and non-cash adjustments of \$4.6 million mainly due to \$2.3 million in depreciation and amortization, \$0.9 million in fair value losses on financial instruments, \$1.1 million in interest expense and \$1.5 million in stock-based compensation. Change in operating assets and liabilities totaled \$0.9 million.

During the year ended December 31, 2019, net cash used in operating activities of \$4.3 million was primarily driven by \$8.4 million of net loss reported for the year, and non-cash adjustments of \$3.3 million mainly due to \$2.3 million in depreciation and amortization, \$1.0 million in interest expense and \$1.3 million in stock-based compensation net of \$0.5 million in non-cash finance income and \$0.5 million non-cash government assistance. Change in operating assets and liabilities totaled \$0.8 million.

Net cash provided by investing activities

During the year ended December 31, 2021, net cash provided by investing activities of \$66.6 million was primarily driven by cash acquired as a result of the Torchlight RTO of \$147 million, offset by \$66.1 million in cash paid for the Nanotech acquisition, \$2.9 million purchase of short-term investments, \$10.4 million in property plant and equipment purchases associated with the construction of the Highfield Park Facility as well as equipment purchases for both the Highfield Park and Pleasanton facilities, and a \$0.9 million increase in intangibles as a result of capitalized legal cost for certain patents, as well as the acquisition of certain intellectual property assets from Interglass Technology AG (Switzerland).

During the year ended December 31, 2020, net cash provided by investing activities of \$2.4 million was primarily driven by proceeds from the CPM RTO of \$3.1 million offset by \$0.7 million in equipment purchases and capitalized legal costs to obtain certain patents.

During the year ended December 31, 2019, net cash used in investing activities of \$1.2 million was driven by equipment purchases and capitalized legal costs to obtain certain patents.

Net cash provided by financing activities

During the year ended December 31, 2021, net cash provided by financing activities of \$15.5 million was primarily driven by \$10.0 million in proceeds received from the issuance of unsecured convertible promissory notes to Torchlight, subsequently eliminated upon consolidation at December 31, 2021, \$3.9 million in proceeds from the issuance of unsecured convertible promissory notes to an affiliate that was subsequently converted into common stock during the year and \$1.4 million in proceeds from options and warrants exercise.

During the year ended December 31, 2020, net cash provided by financing activities of \$6.3 million was primarily driven by \$3.6 million in proceeds received from the issuance of secured convertible debentures to BDC Capital that was subsequently converted into common stock in 2021, \$0.7 million in proceeds from issuance of unsecured convertible debentures and \$0.6 million in proceeds from the issuance of convertible promissory notes to a shareholder that were subsequently converted into common stock in 2021, \$0.6 million in proceeds from common stock and warrants issuances offset by \$0.2 million in repayments of long-term debt.

During the year ended December 31, 2019, net cash provided by financing activities of \$5.3 million was primarily driven by \$2.4 million in proceeds received from the issuance of secured convertible promissory notes, \$0.6 million in proceeds from issuance of unsecured convertible debentures and \$0.8 million in proceeds from a private placement, \$0.7 million in proceeds from long-term debt.

CRITICAL ACCOUNTING POLICIES AND ESTIMATES

The preparation of financial statements in conformity with U.S. GAAP requires the Company to make estimates, judgments and assumptions that affect the amounts reported in the consolidated financial statements. These estimates, judgments and assumptions are evaluated on an ongoing basis. The Company bases its estimates on historical experience and on various other assumptions that it believes are reasonable at that time, the results of which form the basis for making judgments about the carrying values of assets and liabilities that are not readily apparent from other sources. Actual results may differ materially from those estimates. The accounting policies that reflect the Company's more significant estimates, judgments and assumptions and which it believes are the most critical to aid in fully understanding and evaluating our reported financial results include the following:

Revenue recognition – The Company's revenue is generated from product sales as well as development revenue. The Company recognizes revenue when it satisfies performance obligations under the terms of its contracts, and control of its products is transferred to its customers in an amount that reflects the consideration the Company expects to receive from its customers in exchange for those products or services.

Revenue from the sale of prototypes and finished products is recognized at the point in time when control of the asset is transferred to the customer, generally on delivery of goods. The Company considers whether there are other obligations in the contract that are separate performance obligations to which a portion of the transaction price needs to be allocated. In determining the transaction price for the sale of prototypes, the Company considers the effects of variable consideration, the existence of significant financial components, non-cash consideration and consideration payable to the customer (if any).

Revenue from development activities is recognized over time, using an input method to measure progress towards complete satisfaction of the research activities and associated performance obligations identified within each contract have been satisfied.

Goodwill - Goodwill represents the excess of the purchase price in a business combination over the fair value of net tangible and intangible assets acquired. The carrying amount of goodwill is periodically reviewed for impairment (at a minimum annually) and whenever events or changes in circumstances indicate that the carrying value of this asset may not be recoverable.

The Company first performs a qualitative assessment to test the reporting unit's goodwill for impairment. Based on the qualitative assessment, if it is determined that the fair value of our reporting unit is more likely than not (i.e. a likelihood of more than 50 percent) to be less than its carrying amount, the quantitative assessment of the impairment test is performed. In the quantitative assessment, the Company compares the fair value of our reporting unit to its carrying value. If the fair value of the reporting unit exceeds its carrying value, goodwill is not considered impaired and the Company is not required to

perform further testing. If the carrying value of the net assets of the reporting unit exceeds its fair value, then an impairment loss equal to the difference, but not exceeding the total carrying value of goodwill allocated to the reporting unit, would be recorded.

Acquired intangibles - In accordance with ASC 805 *Business Combinations*, the Company allocates the purchase price of acquired companies to the tangible and intangible assets acquired and the liabilities assumed based on their estimated fair values. Such valuations may require management to make significant estimates and assumptions, especially with respect to intangible assets. Acquired intangible assets consist of acquired technology and customer relationships. In valuing acquired intangible assets, the Company makes assumptions and estimates based in part on projected financial information, which makes assumptions and estimates inherently uncertain, particularly for early-stage technology companies. The significant estimates and assumptions used by the Company in the determination of the fair value of acquired intangible technology assets include the revenue growth rate, the royalty rate and the discount rate. The significant estimates and assumptions used by the Company in the determination of the fair value of acquired customer contract intangible assets include the revenue growth rate and the discount rate.

As a result of the judgments that need to be made, the Company obtains the assistance of independent valuation firms. The Company completes these assessments as soon as practical after the closing dates. Any excess of the purchase price over the estimated fair values of the identifiable net assets acquired is recorded as goodwill.

Although the Company believes the assumptions and estimates of fair value it has made in the past have been reasonable and appropriate, they are based in part on historical experience and information obtained from the management of the acquired companies and are inherently uncertain and subject to refinement. Unanticipated events and circumstances may occur that may affect the accuracy or validity of such assumptions, estimates or actual results. As a result, during the measurement period, which may be up to one year from the acquisition date, the Company records adjustments to the assets acquired and liabilities assumed with the corresponding offset to goodwill, if the changes are related to conditions that existed at the time of the acquisition. Upon the conclusion of the measurement period or final determination of the values of assets acquired or liabilities assumed, whichever comes first, any subsequent adjustments, based on events that occurred subsequent to the acquisition date, are recorded in our consolidated statements of operations and comprehensive loss.

Business combinations - The Company allocates the fair value of purchase consideration to the tangible assets acquired, liabilities assumed, and intangible assets acquired based on their estimated fair values. The excess of the fair value of purchase consideration over the fair values of these identifiable assets and liabilities is recorded as goodwill to reporting units based on the expected benefit from the business combination. Allocation of purchase consideration to identifiable assets and liabilities affects the amortization expense, as acquired finite-lived intangible assets are amortized over the useful life, whereas any indefinite-lived intangible assets, including goodwill, are not amortized. During the measurement period, which is not to exceed one year from the acquisition date, the Company records adjustments to the assets acquired and liabilities assumed, with the corresponding offset to goodwill. Upon the conclusion of the measurement period, any subsequent adjustments are recorded to earnings. Acquisition-related expenses are recognized separately from business combinations and are expensed as incurred.

Assets held for sale – The Company determines the fair market value of the oil and gas assets held for sale on a periodic basis using inputs from Roth Capital Partners, LLC, a valuation firm skilled in the valuation of this class of assets. The Company estimated the fair value of the Orogrande property at June 28, 2021 as the sum of the median of each of a range of fair values of identified drilling locations determined using numerous assumptions including the number of drilling locations, forecasted production volumes per drilling location, fair value per barrel of forecasted production volumes based on comparable transactions or entities with acreage proximal to the Orogrande Project property, and applying a drilling location risk factor (collectively, “drilling location assumptions”); and a range of fair values of the undeveloped land acreage determined using numerous assumptions including the number of undeveloped land acres, fair value per acre for comparable transactions or entities with acreage proximal to the Orogrande Project property, and applying an acreage risk factor (collectively, “undeveloped land assumptions”). The Company estimated the fair value of the Hazel Property at June 28, 2021 using a discounted cash flow model. The significant estimates and assumptions used by the Company in the determination of the fair value of the Hazel Project property at acquisition date included forecasted production volumes, forecasted commodity prices, and the discount rate. The Company estimated the fair value of the O&G assets at December 31, 2021 by obtaining a valuation study performed by Roth Capital Partners, LLC. The estimates involved are consistent with those outlined above for the June 28, 2021 valuation estimate.

Commitments and contractual obligations

For a description of the Company’s commitments and contractual obligations, please see “Note 28 – Commitments and contingencies” as well as “Note 27 – Leases” in the Notes to the Consolidated Financial Statements of this Form 10-K.

Off-balance sheet arrangements

Off-balance sheet firm commitments relating to outstanding letters of credit amounted to approximately \$1.1 million as of December 31, 2021. These letters of credit and bank guarantees are collateralized by \$0.8 million in restricted cash. Please see “Note 27 – Commitments and contingencies” in the Notes to the Consolidated Financial Statements of this Form 10-K. The Company does not maintain any other off-balance sheet arrangements.

Recent accounting pronouncements

For a description of recent accounting pronouncements, including the expected dates of adoption and estimated effects, if any, on the Company’s Consolidated Financial Statements, please see “Note 2 – Significant accounting policies” in the Notes to the Consolidated Financial Statements of this Form 10-K.

Item 7A. Quantitative and Qualitative Disclosures About Market Risk.

Interest rate risk

Interest rate risk is the risk that the fair value or future cash flows of a financial instrument will fluctuate because of changes in market interest rates. Interest rate risk is minimized through management’s decision to primarily obtain fixed rate or interest-free debt. The Company’s funding obligation and long-term debt have been obtained at a nil interest rate and the interest on the cash balances is insignificant. As a result, the Company is not exposed to material cash flow interest rate risk.

Foreign currency risk

Foreign currency risk is the risk to earnings or capital arising from changes in foreign exchange rates. The Company has transactional currency exposures that arise from loans and receivables as well as purchases in currencies other than their functional currency such as Canadian Dollars, Euros and Great Britain Pounds. Current exposure is not material at this time, as exchange rate impacts occur with a reasonable timeline of the decision to make the expenditure. As a result, the Company does not enter into derivatives to hedge the exposure.

In the future, a hedging strategy may be enacted if long term contracts or operational cash flows create a requirement.

Item 8. Financial Statements and Supplementary Data.

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Report of Independent Registered Public Accounting Firm

To the Stockholders and Board of Directors

Meta Materials Inc.:

Opinion on the Consolidated Financial Statements

We have audited the accompanying consolidated balance sheets of Meta Materials Inc. and subsidiaries (the Company) as of December 31, 2021 and 2020, the related consolidated statements of operations and comprehensive loss, changes in stockholders' equity, and cash flows for each of the years in the three-year period ended December 31, 2021, and the related notes (collectively, the consolidated financial statements). In our opinion, the consolidated financial statements present fairly, in all material respects, the financial position of the Company as of December 31, 2021 and 2020, and the results of its operations and its cash flows for each of the years in the three-year period ended December 31, 2021, in conformity with U.S. generally accepted accounting principles.

We also have audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) (PCAOB), the Company's internal control over financial reporting as of December 31, 2021, based on criteria established in Internal Control – Integrated Framework (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission, and our report dated March 1, 2022 expressed an adverse opinion on the effectiveness of the Company's internal control over financial reporting.

Basis for Opinion

These consolidated financial statements are the responsibility of the Company's management. Our responsibility is to express an opinion on these consolidated financial statements based on our audits. We are a public accounting firm registered with the PCAOB and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audits in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the consolidated financial statements are free of material misstatement, whether due to error or fraud. Our audits included performing procedures to assess the risks of material misstatement of the consolidated financial statements, whether due to error or fraud, and performing procedures that respond to those risks. Such procedures included examining, on a test basis, evidence regarding the amounts and disclosures in the consolidated financial statements. Our audits also included evaluating the accounting principles used and significant estimates made by management, as well as evaluating the overall presentation of the consolidated financial statements. We believe that our audits provide a reasonable basis for our opinion.

Critical Audit Matters

The critical audit matters communicated below are matters arising from the current period audit of the consolidated financial statements that were communicated or required to be communicated to the audit committee and that: (1) relate to accounts or disclosures that are material to the consolidated financial statements and (2) involved our especially challenging, subjective, or complex judgments. The communication of critical audit matters does not alter in any way our opinion on the consolidated financial statements, taken as a whole, and we are not, by communicating the critical audit matters below, providing separate opinions on the critical audit matters or on the accounts or disclosures to which they relate.

Acquisition date fair value of a developed nanotechnology intangible asset in the acquisition of Nanotech Security Corp.

As discussed in Note 3 to the consolidated financial statements, on October 5, 2021, the Company acquired Nanotech Security Corp. for \$72.1 million. The acquisition was accounted for as a business combination. The Company measured the assets acquired and liabilities assumed at fair value, which resulted in the recognition of a developed nanotechnology intangible asset of \$14.8 million. As discussed in Note 2 to the consolidated financial statements, the significant estimates and assumptions used by the Company in the determination of the fair value of acquired intangible technology assets include the revenue growth rate, the royalty rate, and the discount rate.

We identified the evaluation of the acquisition date fair value of the developed nanotechnology intangible asset in the acquisition of Nanotech Security Corp. as a critical audit matter. Specifically, the assessment of the revenue growth rate, royalty rate, and discount rate assumptions used in estimating the acquisition date fair value involved a high degree of subjective auditor judgment. In addition, the estimated fair value was sensitive to possible changes to the above estimates and assumptions.

The following are the primary procedures we performed to address this critical audit matter. We evaluated the revenue growth rate by comparing to historical results for the acquired entity and publicly available market data. We involved valuation professionals with specialized skills and knowledge, who assisted in:

- evaluating the Company's discount rate assumption, by comparing it against a discount rate range that was independently developed using publicly available market data for comparable entities
- evaluating the discount rate applied to the developed nanotechnology intangible asset by comparing it to the weighted average return on assets acquired in the Nanotech Security Corp. business combination and the internal rate of return of the Nanotech Security Corp. business combination
- evaluating the Company's royalty rate assumption, by comparing the selected royalty rate to ranges of royalty rates observed in comparable royalty agreements.

Fair value of the Orogrande Project property and preferred stock liability

As discussed in Note 3 to the consolidated financial statements, the Company completed a reverse acquisition of Torchlight Energy Resources, Inc. on June 28, 2021. The assets acquired included certain oil and natural gas properties with a fair value of \$72.6 million, of which \$71.1 million of the fair value related to the Orogrande Project property. The liabilities assumed included a preferred stock liability with a fair value of \$72.6 million entitling the preferred stock owners to the net proceeds of the sale or spinout of the oil and natural gas properties. As a result, the fair value measurement of the oil and natural gas properties, including the Orogrande Project property, also forms the basis for the fair value measurement of the preferred stock liability as of June 28, 2021 and as of December 31, 2021. The Company engaged an independent valuation firm to assist in the determination of the fair value of the Orogrande Project property as of June 28, 2021 and December 31, 2021. The estimated fair value of the Orogrande Project property was calculated as the sum of the median of each of:

- a range of fair values of identified drilling locations determined using numerous assumptions including the number of drilling locations, forecasted production volumes per drilling location, fair value per barrel of forecasted production volumes based on comparable transactions or entities with acreage proximal to the Orogrande Project property, and applying a drilling location risk factor (collectively, "drilling location assumptions"); and
- a range of fair values of the undeveloped land acreage determined using numerous assumptions including the number of undeveloped land acres, fair value per acre for comparable transactions or entities with acreage proximal to the Orogrande Project property, and applying an acreage risk factor (collectively, "undeveloped land assumptions").

We identified the evaluation of the acquisition-date and year-end fair value of the Orogrande Project property as a critical audit matter. A high degree of subjective auditor judgment was required to evaluate the drilling location and undeveloped land assumptions used to calculate the fair value of the Orogrande Project property. Minor changes to these assumptions could have had a significant effect on the estimate of fair value of the Orogrande Project property. Additionally, the audit effort associated with this estimate required specialized skills and knowledge.

The following are the primary procedures we performed to address this critical audit matter. We evaluated the competence, capabilities and objectivity of the independent valuation firm engaged by the Company. We involved valuation professionals with specialized skills and knowledge, who assisted in:

- evaluating the methodology used by the independent valuation firm to calculate the estimated fair value of the Orogrande Project property, including the determination of the number of drilling locations, forecasted production volumes per drilling location, drilling location risk factors, number of undeveloped land acres, and acreage risk factor
- evaluating the Company's determination of fair value per barrel of forecasted production volumes and fair value per acre by comparing to publicly available market data for comparable transactions or entities with acreage proximal to the Orogrande Project property.

/s/ KPMG LLP

Chartered Professional Accountants, Licensed Public Accountants

We have served as the Company's auditor since 2019.

Vaughan, Canada

March 1, 2022

Report of Independent Registered Public Accounting Firm

To the Stockholders and Board of Directors
Meta Materials Inc.:

Opinion on Internal Control Over Financial Reporting

We have audited Meta Material Inc.'s (the Company) internal control over financial reporting as of December 31, 2021, based on criteria established in Internal Control – Integrated Framework (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission. In our opinion, because of the effect of the material weaknesses, described below, on the achievement of the objectives of the control criteria, the Company has not maintained effective internal control over financial reporting as of December 31, 2021, based on criteria established in Internal Control – Integrated Framework (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission.

We also have audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) (PCAOB), the consolidated balance sheets of the Company as of December 31, 2021 and 2020, the related consolidated statements of operations and comprehensive loss, changes in stockholders' equity, and cash flows for each of the years in the three-year period ended December 31, 2021, and the related notes (collectively, the consolidated financial statements), and our report dated March 1, 2022 expressed an unqualified opinion on those consolidated financial statements.

A material weakness is a deficiency, or a combination of deficiencies, in internal control over financial reporting, such that there is a reasonable possibility that a material misstatement of the company's annual or interim financial statements will not be prevented or detected on a timely basis. Material weaknesses related to the following have been identified and included in management's assessment:

- An ineffective control environment resulting from a lack of the required number of trained financial reporting, accounting, information technology (IT) and operational personnel with the appropriate skills and knowledge of GAAP and with assigned responsibility and accountability related to the design, implementation, and operation of internal control over financial reporting.
- The insufficient number of personnel described above contributed to an ineffective risk assessment process necessary to identify all relevant risks of material misstatement and to evaluate the implications of relevant risks on its internal control over financial reporting.
- An ineffective information and communication process resulting from: (i) insufficient communication of internal control information, including objectives and responsibilities, such as delegation of authority; and (ii) ineffective general IT controls and ineffective controls over information from service organizations, resulting in insufficient controls to ensure the relevance, timeliness and quality of information used in control activities.
- As a consequence of the above, the Company had ineffective control activities related to the design, implementation and operations of process level and financial statement close controls which had a pervasive impact on the Company's internal control over financial reporting. In addition, process-level automated control activities and manual control activities that are dependent upon information derived from IT systems were also ineffective.
- An ineffective monitoring process resulting from the evaluation and communication of internal control deficiencies, including monitoring corrective actions, not being performed in a timely manner.

The material weaknesses were considered in determining the nature, timing, and extent of audit tests applied in our audit of the 2021 consolidated financial statements, and this report does not affect our report on those consolidated financial statements.

The Company acquired Nanotech Security Corp. during the year ended December 31, 2021, and management excluded Nanotech Security Corp. from its assessment of the effectiveness of the Company's internal control over financial reporting as of December 31, 2021, Nanotech Security Corp.'s internal control over financial reporting associated with 17% of total assets and 45% of total revenues included in the consolidated financial statements of the Company as of and for the year ended December 31, 2021. Our audit of internal control over financial reporting of the Company also excluded an evaluation of the internal control over financial reporting of Nanotech Security Corp.

Basis for Opinion

The Company's management is responsible for maintaining effective internal control over financial reporting and for its assessment of the effectiveness of internal control over financial reporting, included in the accompanying Form 10-K Item 9A under the header "Management's Report on Internal Control over Financial Reporting". Our responsibility is to express an opinion on the Company's internal control over financial reporting based on our audit. We are a public accounting firm registered with the PCAOB and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audit in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether effective internal control over financial reporting was maintained in all material respects. Our audit of internal control over financial reporting included obtaining an understanding of internal control over financial reporting, assessing the risk that a material weakness exists, and testing and evaluating the design and operating effectiveness of internal control based on the assessed risk. Our audit also included performing such other procedures as we considered necessary in the circumstances. We believe that our audit provides a reasonable basis for our opinion.

Definition and Limitations of Internal Control Over Financial Reporting

A company's internal control over financial reporting is a process designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles. A company's internal control over financial reporting includes those policies and procedures that (1) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of the company; (2) provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with generally accepted accounting principles, and that receipts and expenditures of the company are being made only in accordance with authorizations of management and directors of the company; and (3) provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use, or disposition of the company's assets that could have a material effect on the financial statements.

Because of its inherent limitations, internal control over financial reporting may not prevent or detect misstatements. Also, projections of any evaluation of effectiveness to future periods are subject to the risk that controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate.

/s/ KPMG LLP

Chartered Professional Accountants, Licensed Public Accountants

Vaughan, Canada

March 1, 2022

Item 1. Financial Statements

META MATERIALS INC.
CONSOLIDATED BALANCE SHEETS

	As of December 31,	
	2021	2020
Assets		
Current assets:		
Cash and cash equivalents	\$ 46,645,704	\$ 1,395,683
Restricted cash	788,768	—
Short-term investments	2,875,638	—
Grants receivable	175,780	327,868
Accounts and other receivables	1,665,700	22,833
Inventory	265,718	463,382
Prepaid expenses and other current assets	3,451,367	514,203
Assets held for sale	75,500,000	—
Due from related parties	10,657	—
Total current assets	131,379,332	2,723,969
Intangible assets, net	28,971,824	4,476,614
Property, plant and equipment, net	27,018,114	2,761,171
Operating lease right-of-use assets	6,278,547	270,581
Goodwill	240,376,634	—
Total assets	\$ 434,024,451	\$ 10,232,335
Liabilities and stockholders' equity (deficit)		
Current liabilities		
Trade and other payables	\$ 13,335,470	\$ 2,940,452
Due to related party	—	245,467
Current portion of long-term debt	491,278	290,544
Current portion of deferred revenues	779,732	1,239,927
Current portion of deferred government assistance	846,612	779,578
Preferred stock liability	75,500,000	—
Current portion of operating lease liabilities	663,861	150,802
Asset retirement obligations	21,937	—
Unsecured convertible promissory notes	—	1,203,235
Secured convertible debentures	—	5,545,470
Total current liabilities	91,638,890	12,395,475
Deferred revenues	637,008	804,143
Deferred government assistance	3,038	146,510
Deferred tax liability	324,479	318,054
Unsecured convertible debentures	—	1,825,389
Long-term operating lease liabilities	3,706,774	119,779
Funding obligation	268,976	776,884
Long-term debt	2,737,171	2,743,504

Total liabilities	99,316,336	19,129,738
Stockholders' equity (deficit)		
Common stock - \$0.001 par value; 1,000,000,000 shares authorized, 284,573,316 shares issued and outstanding at December 31, 2021, and \$Nil par value; unlimited shares authorized, 154,163,975 shares issued and outstanding at December 31, 2020	262,751	132,347
Additional paid-in capital	463,136,404	29,022,977
Accumulated other comprehensive loss	(296,936)	(655,884)
Accumulated deficit	(128,394,104)	(37,396,843)
Total stockholders' equity (deficit)	334,708,115	(8,897,403)
Total liabilities and stockholders' equity	<u>\$ 434,024,451</u>	<u>\$ 10,232,335</u>

Commitments and contingencies (note 28)

Subsequent events (note 29)

The accompanying notes are an integral part of these consolidated financial statements

META MATERIALS INC.
CONSOLIDATED STATEMENTS OF OPERATIONS AND COMPREHENSIVE LOSS

	Year ended December 31,		
	2021	2020	2019
Revenue:			
Product sales	\$ 407,915	\$ 2,905	\$ 23,745
Development revenue	3,674,602	1,119,278	878,665
Total revenue	4,082,517	1,122,183	902,410
Cost of goods sold	675,973	3,254	9,172
Gross profit	3,406,544	1,118,929	893,238
Operating expenses:			
Selling & marketing	2,267,354	1,064,659	1,125,719
General & administrative	29,699,601	6,707,858	4,819,737
Research & development	9,497,427	4,102,791	3,825,194
Total operating expenses	41,464,382	11,875,308	9,770,650
Loss from operations	(38,057,838)	(10,756,379)	(8,877,412)
Interest expense, net	(1,106,445)	(1,429,954)	(1,135,922)
Loss on foreign exchange, net	(205,882)	(264,831)	(316,261)
Loss on financial instruments, net	(40,540,091)	(844,993)	(280,319)
Other (loss) income, net	(11,939,068)	1,491,188	2,081,398
Total other expense, net	(53,791,486)	(1,048,590)	348,896
Loss before income taxes	(91,849,324)	(11,804,969)	(8,528,516)
Income tax recovery	852,063	193,710	83,549
Net loss	\$ (90,997,261)	\$ (11,611,259)	\$ (8,444,967)
Other comprehensive income (loss) net of tax			
Foreign currency translation (loss) gain	(321,230)	88,173	81,432
Fair value gain (loss) on changes of own credit risk	680,178	(680,178)	—
Total other comprehensive income (loss)	358,948	(592,005)	81,432
Comprehensive loss	\$ (90,638,313)	\$ (12,203,264)	\$ 81,432
Basic and diluted loss per share ⁽¹⁾	\$ (0.39)	\$ (0.08)	\$ (0.17)
Weighted average number of shares outstanding - basic and diluted ⁽¹⁾	232,898,398	137,258,259	50,015,137

(2) Retroactively restated for the year ended December 31, 2021 and 2020 for the Torchlight reverse acquisition ("Torchlight RTO") and CPM reverse recapitalization ("CPM RTO")

The accompanying notes are an integral part of these consolidated financial statements

META MATERIALS INC.
CONSOLIDATED STATEMENTS OF CHANGES IN STOCKHOLDERS' EQUITY

	Preferred Stock		Common Stock		Additional Paid-in Capital	Accumulated Other Comprehensive Income (loss)	Accumulated Deficit	Total Stockholders' Equity
	Shares	Amount	Shares	Amount				
Balance, December 31, 2018	58,153,368	\$ 58,153	49,339,552	\$ 27,522	\$ 17,270,864	\$ (145,311)	\$ (17,340,617)	\$ (129,389)
Net loss	—	—	—	—	—	—	(8,444,967)	(8,444,967)
Other comprehensive income	—	—	—	—	—	81,432	—	81,432
Issuance of common stock, net	—	—	3,027,283	3,027	636,975	—	—	640,002
Issuance of warrants	—	—	—	—	125,877	—	—	125,877
Conversion of deferred share units	—	—	776,283	776	(776)	—	—	—
Beneficial conversion feature on convertible debt	—	—	—	—	479,061	—	—	479,061
Other stock-based compensation	—	—	154,450	155	1,385,613	—	—	1,385,768
Balance, December 31, 2019	58,153,368	\$ 58,153	53,297,568	\$ 31,480	\$ 19,897,614	\$ (63,879)	\$ (25,785,584)	\$ (5,862,216)
Net loss	—	—	—	—	—	—	(11,611,259)	(11,611,259)
Other comprehensive income	—	—	—	—	—	(592,005)	—	(592,005)
Issuance of common stock, net	—	—	2,613,321	2,613	445,939	—	—	448,552
Issuance of warrants	—	—	—	—	149,994	—	—	149,994
Conversion of deferred share units	—	—	522,596	523	(523)	—	—	—
Conversion of promissory notes	—	—	17,752,163	17,752	3,921,695	—	—	3,939,447
Conversion of preferred stock	(58,153,368)	(58,153)	58,153,368	58,153	—	—	—	—
Effect of reverse recapitalization	—	—	21,599,223	21,599	3,192,903	—	—	3,214,502
Tax withheld on deferred share units	—	—	(72,717)	(73)	(18,669)	—	—	(18,742)
Other stock-based compensation	—	—	298,453	300	1,434,024	—	—	1,434,324
Balance, December 31, 2020	—	\$ —	154,163,975	\$ 132,347	\$ 29,022,977	\$ (655,884)	\$ (37,396,843)	\$ (8,897,403)
Net loss	—	—	—	—	—	—	(90,997,261)	(90,997,261)
Other comprehensive income	—	—	—	—	—	358,948	—	358,948
Conversion of promissory notes	—	—	20,391,239	20,391	23,635,974	—	—	23,656,365
Conversion of secured debentures	—	—	14,155,831	14,156	22,104,626	—	—	22,118,782
Conversion of unsecured debentures	—	—	5,105,338	5,105	5,764,370	—	—	5,769,475
Conversion of long-term debt	—	—	124,716	125	221,718	—	—	221,843
Conversion of payable to related party	—	—	150,522	151	225,835	—	—	225,986
Exercise of stock options	—	—	4,786,927	4,787	1,288,476	—	—	1,293,263
Exercise of warrants	—	—	361,729	362	122,108	—	—	122,470
Exercise of broker warrants	—	—	82,494	83	16,173	—	—	16,256
Effect of reverse acquisition	—	—	82,813,994	82,814	369,378,596	—	—	369,461,410
Shares issued in lieu of operating lease liability	—	—	1,832,989	1,833	2,780,135	—	—	2,781,968
Other stock-based compensation	—	—	603,562	597	8,575,416	—	—	8,576,013
Balance, December 31, 2021	—	\$ —	284,573,316	\$ 262,751	\$ 463,136,404	\$ (296,936)	\$ (128,394,104)	\$ 334,708,115

(2) Retroactively restated from the earliest period presented for the Torchlight reverse acquisition ("Torchlight RTO") and CPM reverse recapitalization ("CPM RTO")

The accompanying notes are an integral part of these consolidated financial statements

META MATERIALS INC.
CONSOLIDATED STATEMENTS OF CASH FLOWS

	<u>2021</u>	<u>Year ended December 31,</u>	
		<u>2020</u>	<u>2019</u>
Cash flows from operating activities:			
Net loss	\$ (90,997,261)	\$ (11,611,259)	\$ (8,444,967)
Adjustments to reconcile net loss to net cash used in operating activities:			
Non-cash finance (income) expense	(471,689)	138,927	(448,437)
Non-cash interest expense	902,940	1,052,776	959,838
Non-cash lease expense	439,791	—	—
Deferred income tax	(852,063)	(193,710)	(83,549)
Depreciation and amortization	3,491,493	2,326,220	2,360,043
Impairment of assets	237,013	4,018	66,765
Unrealized foreign currency exchange loss	407,352	205,001	313,387
Loss on financial instruments, net	40,540,091	844,993	280,319
Change in deferred revenue	(679,541)	(551,374)	(627,902)
Non-cash government assistance	(544,932)	(775,800)	(500,051)
Loss on debt settlement	19,253	—	—
Other income	—	—	(401,186)
Stock-based compensation	1,576,849	1,509,684	1,292,773
Non-cash consulting expense	6,513,378	2,307	91,993
Changes in operating assets and liabilities	4,652,415	(880,830)	780,227
Net cash used in operating activities	<u>(34,764,911)</u>	<u>(7,929,047)</u>	<u>(4,360,747)</u>
Cash flows from investing activities:			
Purchases of intangible assets	(1,133,894)	(104,132)	(42,332)
Purchases of property, plant and equipment	(11,655,417)	(555,013)	(1,153,010)
Purchase of short-term investments	(2,889,852)	—	—
Acquisition of business, net of cash acquired	(66,131,025)	—	—
Proceeds from reverse takeover	146,954,733	3,072,136	—
Net cash provided by investing activities	<u>65,144,545</u>	<u>2,412,991</u>	<u>(1,195,342)</u>
Cash flows from financing activities:			
Proceeds from long-term debt	1,127,151	25,783	664,810
Repayments of long-term debt	(1,090,047)	(190,633)	(58,201)
Proceeds from secured promissory notes	—	—	2,407,118
Proceeds from government grants	223,384	198,286	—
Proceeds from unsecured promissory notes	13,963,386	1,378,042	—
Proceeds from secured convertible debentures	—	3,630,019	—
Proceeds from unsecured convertible debentures	—	693,784	566,690
Proceeds on funding obligation	—	—	982,263
Proceeds from issuance of common stock and warrants, net	—	598,546	765,879
Proceeds from stock option exercises	1,293,263	—	—
Proceeds from warrant exercises	138,726	—	—

Net cash provided by financing activities	15,655,863	6,333,827	5,328,559
Net increase in cash, cash equivalents and restricted cash	46,035,497	817,771	(227,530)
Cash, cash equivalents and restricted cash at beginning of the year	1,395,683	407,061	623,532
Effects of exchange rate changes on cash, cash equivalents and restricted cash	3,292	170,851	11,059
Cash, cash equivalents and restricted cash at end of the year	\$ 47,434,472	\$ 1,395,683	\$ 407,061
Supplemental cash flow information			
Accrued purchases of property, equipment and patents	1,692,969	1,449,197	440,751
Right-of-use assets obtained in exchange for lease liabilities	3,590,148	309,907	109,735
Right-of-use assets and prepaid expenses recognized in exchange for common stock	2,149,381	—	—
Settlement of liabilities in common stock	51,992,451	—	—
Beneficial conversion feature on convertible debt	—	—	479,061
Interest paid on debt	64,528	193,745	14,477

The accompanying notes are an integral part of these consolidated financial statements

1. Corporate information

Meta Materials Inc. (the “Company” or “META” or “Resulting Issuer”) is a developer of high-performance functional materials and nanocomposites specializing in metamaterial research and products, nanofabrication, and computational electromagnetics. The Company’s registered office is located at 85 Swanson Road, Boxborough, Massachusetts 01719, and its principal executive office is located at 1 Research Drive, Halifax, Nova Scotia, Canada.

On March 5, 2020, Metamaterial Inc. (“MMI” or “Resulting Issuer”) and Metamaterial Technologies Inc. (“MTI”) completed a business combination by way of a three-cornered amalgamation pursuant to which MTI amalgamated with a subsidiary of Continental Precious Minerals Inc. (“CPM”), known as Continental Precious Minerals Subco Inc. (“CPM Subco”), to become “Metacontinental Inc.” (the “CPM RTO”). The CPM RTO was completed pursuant to the terms and conditions of an amalgamation agreement dated August 16, 2019 between CPM, MTI and CPM Subco, as amended March 4, 2020. Following the completion of the RTO, Metacontinental Inc. is carrying on the business of the former MTI, as a wholly-owned subsidiary of CPM. In connection with the RTO, CPM changed its name effective March 2, 2020 from Continental Precious Minerals Inc. to MMI. The common stock of CPM was delisted from the TSX Venture Exchange on March 4, 2020 and was posted for trading on the Canadian Securities Exchange (“CSE”) on March 9, 2020 under the symbol “MMAT”.

For accounting purposes, the legal subsidiary, MTI, has been treated as the accounting acquirer and CPM, the legal parent, has been treated as the accounting acquiree. The transaction has been accounted for as a reverse recapitalization. Accordingly, these consolidated financial statements are a continuation of MTI consolidated financial statements prior to March 5, 2020 and exclude the balance sheets, statements of operations and comprehensive loss, statement of changes in stockholder’s equity and statements of cash flows of CPM prior to March 5, 2020. See note 3 for additional information.

On December 14, 2020, the Company (formerly known as “Torchlight Energy Resources, Inc.” or “Torchlight”) and its subsidiaries, Metamaterial Exchangeco Inc. (formerly named 2798832 Ontario Inc., “Canco”) and 2798831 Ontario Inc. (“Callco”), entered into an Arrangement Agreement (the “Arrangement Agreement”) with Metamaterial Inc., an Ontario corporation headquartered in Nova Scotia, Canada (“MMI”), to acquire all of the outstanding common stock of MMI by way of a statutory plan of arrangement (the “Arrangement”) under the Business Corporations Act (Ontario), on and subject to the terms and conditions of the Arrangement Agreement (the “Torchlight RTO”). On June 25, 2021, the Company implemented a reverse stock split, changed its name from “Torchlight Energy Resources, Inc.” to “Meta Materials Inc.” and changed its trading symbol from “TRCH” to “MMAT”. On June 28, 2021, following the satisfaction of the closing conditions set forth in the Arrangement Agreement, the Arrangement was completed.

On June 28, 2021, and pursuant to the completion of the Arrangement Agreement, the Company began trading on the NASDAQ under the symbol “MMAT” while MMI common stock was delisted from the Canadian Securities Exchange (“CSE”) and at the same time, Metamaterial Exchangeco Inc., a wholly-owned subsidiary of META, started trading under the symbol “MMAX” on the CSE. Certain previous shareholders of MMI elected to convert their common stock of MMI into exchangeable shares in Metamaterial Exchangeco Inc. These exchangeable shares, which can be converted into common stock of META at the option of the holder, are similar in substance to common shares of META and have been included in the determination of outstanding common shares of META.

For accounting purposes, the legal subsidiary, MMI, has been treated as the accounting acquirer and the Company, the legal parent, has been treated as the accounting acquiree. The transaction has been accounted for as a reverse acquisition in accordance with ASC 805 *Business Combinations*. Accordingly, these consolidated financial statements are a continuation of MMI consolidated financial statements prior to June 28, 2021 and exclude the balance sheets, statements of operations and comprehensive loss, statement of changes in stockholders’ equity and statements of cash flows of Torchlight prior to June 28, 2021. See note 3 for additional information.

2. Significant accounting policies

Basis of presentation – These consolidated financial statements and related notes are presented in accordance with accounting principles generally accepted in the United States of America (“US GAAP”). The Company’s fiscal year-end is December 31. The consolidated financial statements include the accounts of Meta Materials Inc. and its wholly-owned subsidiaries (collectively, the Company). All significant intercompany balances and transactions have been eliminated in consolidation.

Functional currency – Items included in the consolidated financial statements of each of the Company and its subsidiaries are measured using the currency of the primary economic environment in which the entity operates (the ‘functional currency’).

Reporting Currency – The reporting currency of the Company is in US Dollars. The consolidated financial statements, and the financial information contained herein, are reported in US dollars, except share amounts or as otherwise stated, as the Company believes this results in more relevant and reliable information for its financial statement users.

- **transactions and balances** – Foreign currency transactions are recorded into the functional currency using the exchange rates prevailing at the dates of the associated transactions. Foreign exchange gains and losses resulting from the settlement of such transactions and from the measurement at period end exchange rates of monetary assets and liabilities denominated in foreign currencies are recognized in the statement of operations.
- **translation** – The results and financial position of all subsidiaries that have a functional currency different from the presentation currency are translated into the presentation currency as follows:
 - Company’s assets and liabilities are translated at the closing rate at the date of the balance sheet;
 - Company’s income and expenses are translated at average exchange rates;
 - Company’s resulting exchange differences are recognized in other comprehensive income, a separate component of equity.

Use of estimates – The preparation of these consolidated financial statements in conformity with US GAAP requires management to make estimates and certain assumptions that affect the amounts reported in these consolidated financial statements and accompanying notes. Actual results could differ from these estimates. Significant items subject to such estimates and assumptions include the valuation of goodwill, the valuation of net assets acquired via business combinations; the valuation of oil & natural gas properties, and the valuation of financial instruments measured at fair value.

Cash and cash equivalents – The Company considers all highly liquid investments with a maturity of three months or less when purchased to be cash equivalents.

Inventory – Inventory is measured at the lower of cost and net realizable value. Cost is determined using the first-in, first-out method (FIFO) for all inventory. Inventory consumed during research and development activities is recorded as a research and development expense.

Long-lived assets – Long-lived assets, such as property, plant and equipment, and intangible assets subject to amortization, are reviewed for impairment whenever events or changes in circumstances indicate that the carrying amount of an asset may not be recoverable. If circumstances require a long-lived asset or asset group be tested for possible impairment, the Company first compares undiscounted cash flows expected to be generated by that asset or asset group to its carrying amount. If the carrying amount of the long-lived asset or asset group is not recoverable on an undiscounted cash flow basis, an impairment is recognized to the extent that the carrying amount exceeds its fair value. Fair value is determined through various valuation techniques including discounted cash flow models, quoted market values and third-party independent appraisals, as considered necessary.

Assets held for sale – Assets held for sale are measured at the lower of their carrying amount or fair value less cost to sell. See Note 3 for further discussion of assets held for sale.

Goodwill – Goodwill represents the excess of the purchase price in a business combination over the fair value of net tangible and intangible assets acquired. The carrying amount of goodwill is periodically reviewed for impairment (at a minimum annually) and whenever events or changes in circumstances indicate that the carrying value of this asset may not be recoverable.

The Company first performs a qualitative assessment to test the reporting unit's goodwill for impairment. Based on the qualitative assessment, if it is determined that the fair value of our reporting unit is more likely than not (i.e. a likelihood of more than 50 percent) to be less than its carrying amount, the quantitative assessment of the impairment test is performed. In the quantitative assessment, the Company compares the fair value of our reporting unit to its carrying value. If the fair value of the reporting unit exceeds its carrying value, goodwill is not considered impaired and the Company is not required to perform further testing. If the carrying value of the net assets of the reporting unit exceeds its fair value, then an impairment loss equal to the difference, but not exceeding the total carrying value of goodwill allocated to the reporting unit, would be recorded.

Acquired intangibles – In accordance with ASC 805 *Business Combinations*, the Company allocates the purchase price of acquired companies to the tangible and intangible assets acquired and the liabilities assumed based on their estimated fair values. Such valuations may require management to make significant estimates and assumptions, especially with respect to intangible assets. Acquired intangible assets consist of acquired technology and customer relationships. In valuing acquired intangible assets, the Company makes assumptions and estimates based in part on projected financial information, which makes assumptions and estimates inherently uncertain, particularly for early-stage technology companies. The significant estimates and assumptions used by the Company in the determination of the fair value of acquired intangible technology assets include the revenue growth rate, the royalty rate and the discount rate. The significant estimates and assumptions used by the Company in the determination of the fair value of acquired customer contract intangible assets include the revenue growth rate and the discount rate.

As a result of the judgments that need to be made, the Company obtains the assistance of independent valuation firms. The Company completes these assessments as soon as practical after the closing dates. Any excess of the purchase price over the estimated fair values of the identifiable net assets acquired is recorded as goodwill.

Business combinations - The Company allocates the fair value of purchase consideration to the tangible assets acquired, liabilities assumed and intangible assets acquired based on their estimated fair values. The excess of the fair value of purchase consideration over the fair values of these identifiable assets and liabilities is recorded as goodwill to reporting units based on the expected benefit from the business combination. Allocation of purchase consideration to identifiable assets and liabilities affects the amortization expense, as acquired finite-lived intangible assets are amortized over the useful life, whereas any indefinite-lived intangible assets, including goodwill, are not amortized. During the measurement period, which is not to exceed one year from the acquisition date, the Company records adjustments to the assets acquired and liabilities assumed, with the corresponding offset to goodwill. Upon the conclusion of the measurement period, any subsequent adjustments are recorded to earnings. Acquisition-related expenses are recognized separately from business combinations and are expensed as incurred.

Leases - The Company is a lessee in several non-cancellable operating leases for buildings. The Company accounts for leases in accordance with ASC 842 *Leases*. The Company determines if an arrangement is or contains a lease at contract inception. The Company recognizes a right-of-use (ROU) asset and a lease liability at the lease commencement date.

For operating leases, the lease liability is initially and subsequently measured at the present value of the unpaid lease payments at the lease commencement date. Lease expense for lease payments is recognized on a straight-line basis over the lease term. For finance leases, the lease liability is initially measured in the same manner and date as for operating leases and is subsequently measured at amortized cost using the effective-interest rate method.

The ROU asset is initially measured at cost, which comprises the initial amount of the lease liability adjusted for lease payments made at or before the lease commencement date, plus any initial direct costs incurred less any lease incentives received. The ROU asset is subsequently measured throughout the lease term at the carrying amount of the lease liability, plus initial direct costs, plus (minus) any prepaid (accrued) lease payments, less the unamortized balance of lease incentives received.

Government grants and assistance – Government grants are recognized at their fair value in the period when there is reasonable assurance that the conditions attaching to the grant will be met and that the grant will be received. Grants are recognized as income over the periods necessary to match them with the related costs that they are intended to compensate. When the grant relates to an asset, it is recognized as income over the useful life of the depreciable asset by way of government assistance.

The Company also receives interest-free repayable loans from the Atlantic Canada Opportunities Agency (“ACOA”), a government agency. The benefit of the loan at a below-market rate of interest is treated as a government grant, measured as the difference between proceeds received and the fair value of the loan based on prevailing market interest rates. The fair value of the components, being the loan and the government grant, must be calculated initially in order to allocate the proceeds to the components. The valuation is complex, as there is no active trading market for these items and is based on unobservable inputs.

Revenue recognition – The Company’s revenue is generated from product sales as well as development revenue. The Company recognizes revenue when it satisfies performance obligations under the terms of its contracts, and control of its products is transferred to its customers in an amount that reflects the consideration the Company expects to receive from its customers in exchange for those products or services.

Revenue from the sale of prototypes and finished products is recognized at the point in time when control of the asset is transferred to the customer, generally on delivery of goods. The Company considers whether there are other obligations in the contract that are separate performance obligations to which a portion of the transaction price needs to be allocated. In determining the transaction price for the sale of prototypes, the Company considers the effects of variable consideration, the existence of significant financial components, non-cash consideration and consideration payable to the customer (if any).

Revenue from development activities is recognized over time, using an input method to measure progress towards complete satisfaction of the research activities and associated performance obligations identified within each contract have been satisfied.

Deferred revenue – consist of fees invoiced or paid by the Company’s customers for which the associated performance obligations have not been satisfied and revenue has not been recognized based on the Company’s revenue recognition criteria described above.

Deferred revenue is reported in a net position on an individual contract basis at the end of each reporting period and is classified as current in the consolidated balance sheet when the revenue recognition associated with the related customer payments and invoicing is expected to occur within one year of the balance sheet date and as long-term when the revenue recognition associated with the related customer payments and invoicing is expected to occur more than one year from the balance sheet date.

Fair value measurements – The Company uses valuation approaches that maximize the use of observable inputs and minimize the use of unobservable inputs to the extent possible. The Company determines fair value based on assumptions that market participants would use in pricing an asset or liability in the principal or most advantageous market. When considering market participant assumptions in fair value measurements, the following fair value hierarchy distinguishes between observable and unobservable inputs, which are categorized in one of the following levels:

- Level 1 inputs: Unadjusted quoted prices in active markets for identical assets or liabilities accessible to the reporting entity at the measurement date.
- Level 2 inputs: Other than quoted prices included in Level 1 inputs that are observable for the asset or liability, either directly or indirectly, for substantially the full term of the asset or liability.
- Level 3 inputs: Unobservable inputs for the asset or liability used to measure fair value to the extent that observable inputs are not available, thereby allowing for situations in which there is little, if any, market activity for the asset or liability at measurement date.

Fair value option – Under the Fair Value Option Subsections of ASC Subtopic 825-10, *Financial Instruments* – Overall, the Company has the irrevocable option to report certain financial assets and financial liabilities at fair value on an instrument-by-instrument basis, with changes in fair value reported in the statement of operations. Any changes in the fair value of liabilities resulting from changes in instrument-specific credit risk are reported in other comprehensive income.

Research and development – Research and development activities are expensed as incurred.

Basic and diluted earnings (loss) per share – Basic earnings (loss) per common share is computed by dividing net income (loss) available to common stockholders by the weighted average number of common stock outstanding during the period. Diluted earnings (loss) per common share gives effect to all dilutive potential common stock outstanding during the period including stock options, deferred stock units (“DSUs”), Restricted Share Units (“RSUs”), and warrants which are calculated using the treasury stock method, and convertible debt instruments using the if-converted method. Diluted earnings (loss) per common share excludes all dilutive potential stock if their effect is anti-dilutive.

Stock based compensation – The Company recognizes compensation expense for equity awards based on the grant date fair value of the award. The Company recognizes stock-based compensation expense for awards granted to employees that have a graded vesting schedule based on a service condition only on a straight-line basis over the requisite service period for each separately vesting portion of the award as if the award was, in substance, multiple awards (the “graded-vesting attribution method”), based on the estimated grant date fair value for each separately vesting tranche. For equity awards with a graded vesting schedule and a combination of service and performance conditions, the Company recognizes stock-based compensation expense using a graded-vesting attribution method over the requisite service period when the achievement of a performance-based milestone is probable, based on the relative satisfaction of the performance condition as of the reporting date.

For stock-based awards granted to consultants and non-employees, compensation expense is recognized using the graded-vesting attribution method over the period during which services are rendered by such consultants and non-employees until completed.

The measurement date for each tranche of employee awards is the date of grant, and stock-based compensation costs are recognized as expense over the employees’ requisite service period, which is the vesting period.

The Company estimates the grant date fair value of awards using the Black-Scholes option pricing model and estimates the number of forfeitures expected to occur. The Company may use other pricing models when applicable such as Monte-Carlo simulation. See note 15 for the Company’s assumptions used in connection with option grants made during the periods covered by these consolidated financial statements.

Income taxes – Income taxes are accounted for under the asset and liability method. Deferred tax assets and liabilities are recognized for the future tax consequences attributable to differences between the financial statement carrying amounts of existing assets and liabilities and their respective tax bases and operating loss carry forwards. Deferred tax assets and liabilities are measured using enacted tax rates expected to apply to taxable income in the years in which those temporary differences are expected to be recovered or settled. The effect on deferred tax assets and liabilities of a change in tax rates is recognized in income in the period that includes the enactment date. A valuation allowance is established to reduce deferred tax assets if it is more likely than not that the related tax benefits will not be realized.

Authoritative guidance for uncertainty in income taxes requires that the Company recognize the financial statement benefit of a tax position only after determining that the relevant tax authority would more likely than not sustain the position following an examination. Management has reviewed the Company’s tax positions and determined there were no uncertain tax positions requiring recognition in the consolidated financial statements. Company tax returns remain subject to Federal, Provincial and State tax examinations. Generally, the applicable statutes of limitation are three to four years from their respective filings.

Recently adopted accounting pronouncements

ASU 2019-12

Effective January 1, 2021, the Company adopted ASU 2019-12 on a prospective basis. The new standard was issued in December 2019 with the intent of simplifying the accounting for income taxes. The accounting update removes certain exceptions to the general principles in Accounting Standards Codification (ASC) Topic 740 *Income Taxes* and provides simplification by clarifying and amending existing guidance. The adoption of this ASU did not have a material impact on the Company's consolidated financial statements.

ASU 2020-09

In October 2020, the FASB issued ASU 2020-09, Debt (Topic 470): Amendments to SEC Paragraphs Pursuant to SEC Release No. 33-10762. The amendments in ASU 2020-09 amend rules focused on the provision of material, relevant, and decision-useful information regarding guarantees and other credit enhancements and eliminate prescriptive requirements that have imposed unnecessary burdens and incentivized issuers of securities with guarantees and other credit enhancements to offer and sell those securities on an unregistered basis. The adopted amendments relate to the financial disclosure requirements for guarantors and issuers of guaranteed securities registered or being registered in Rule 3-10 of Regulation S-X, and affiliates whose securities collateralize securities registered or being registered in Rule 3-16 of Regulation S-X. The amendments in ASU 2020-09 are effective for public business entities for annual periods beginning after December 15, 2020. The Company adopted ASU 2020-09 on January 1, 2021 and its adoption did not have a material effect on the Company's consolidated financial statements and related disclosures.

ASU 2020-10

In October 2020, the FASB issued ASU 2020-10, *Codification Improvements*, which updated various codification topics by clarifying or improving disclosure requirements to align with the SEC's regulations. The amendments in ASU 2020-10 are effective for annual periods beginning after December 15, 2020, for public business entities. The Company adopted ASU 2020-10 on January 1, 2021 and its adoption did not have a material effect on the Company's consolidated financial statements and related disclosures.

Accounting pronouncements not yet adopted

ASU 2021-04

In April 2021, the FASB issued ASU 2021-04, *Earnings Per Share* (Topic 260). This guidance clarifies and reduces diversity in an issuer's accounting for modifications or exchanges of freestanding equity-classified written call options due to a lack of explicit guidance in the FASB Codification. This guidance is effective for the Company's interim and annual reporting periods beginning after December 15, 2021. The Company is currently evaluating the impact of the new guidance on its consolidated financial statements.

ASU 2021-08

In October 2021, the FASB issued ASU 2021-08, *Business Combinations* (Topic 805): Accounting for Contract Assets and Contract Liabilities from Contracts with Customers, which clarifies that an acquirer of a business should recognize and measure contract assets and contract liabilities in a business combination in accordance with ASC Topic 606, *Revenue from Contracts with Customers*. This guidance will be effective for the Company's interim and annual reporting periods beginning after December 15, 2022. The Company is currently evaluating the impact of the new guidance on its consolidated financial statements.

ASU 2021-10

In November 2021, the FASB issued ASU 2021-10, *Government Assistance* (Topic 832): Disclosure by Business Entities about Government Assistance, which improves the transparency of government assistance received by most business entities by requiring the disclosure of: (1) the types of government assistance received; (2) the accounting for such assistance; and (3) the effect of the assistance on a business entity's financial statements. This guidance is effective for the Company's interim and annual reporting periods beginning after December 15, 2021. The Company is currently evaluating the impact of the new guidance on its consolidated financial statements.

3. Acquisitions and preferred stock liability

Torchlight RTO

Arrangement

As discussed in note 1, on December 14, 2020, Meta Materials Inc. and its subsidiaries, Metamaterial Exchangeco Inc. and 2798831 Ontario Inc. (“Calco”) entered into an Arrangement Agreement with Torchlight Energy Resources, Inc. to acquire all of the outstanding common stock of MMI. On March 12, 2021, MMI’s annual general and special meeting was held and MMI’s securityholders approved the Arrangement and on June 11, 2021, approval was obtained from Torchlight shareholders through a special meeting.

On June 25, 2021, Torchlight effected a reverse stock split of its Common Stock, at a ratio of two-to-one, changed its name from “Torchlight Energy Resources, Inc.” to “Meta Materials Inc.” and declared a dividend, on a one-for-one basis, of stock of Series A Non-Voting Preferred Stock to holders of record of Company Common Stock as of June 24, 2021.

On June 28, 2021, following the satisfaction of the closing conditions set forth in the Arrangement Agreement, the Arrangement was completed. The stock of Company Common Stock, previously traded on the NASDAQ under the ticker symbol “TRCH,” commenced trading on the NASDAQ under the ticker symbol “MMAT”.

Securities conversion

Pursuant to the completion of the Arrangement, each common share of MMI that was issued and outstanding immediately prior to June 28, 2021 was converted into the right to receive 1.845 newly issued shares of common stock, par value \$0.001 per share of the Resulting Issuer or stock of Canco, which are exchangeable for shares of the Resulting Issuer at the election of each former MMI stockholder. In addition, all of MMI's outstanding options, deferred share units and other securities exercisable or exchangeable for, or convertible into, and any other rights to acquire MMI Common Stock were exchanged for securities exercisable or exchangeable for, or convertible into, or other rights to acquire Resulting Issuer Common Stock. Immediately following the completion of the RTO, the former security holders of MMI owned approximately 70% of the Resulting Issuer Common Stock, accordingly, the former shareholders of MMI, as a group, retained control of the Resulting Issuer, and while Torchlight was the legal acquirer of MMI, MMI was deemed to be the acquirer for accounting purposes.

Reverse acquisition

Pursuant to ASC 805 *Business Combinations*, the transaction was accounted for as a reverse acquisition since: (i) the shareholders of MMI owned the majority of the outstanding common stock of the Company after the share exchange; (ii) a majority of the directors of the Company are also directors of MMI; and (iii) the previous officers of the Company were replaced with officers designated by MMI. The Company and MMI remain separate legal entities (with the Company as the parent of MMI). These consolidated financial statements are those of MMI prior to June 28, 2021 and exclude the balance sheets, results of operations and comprehensive loss, statement of changes in stockholders' equity, and statements of cash flows of Torchlight prior to June 28, 2021.

Measuring the Consideration Transferred

The accounting acquirer issued no cash consideration for the acquiree. Instead, the accounting acquiree issued its 196,968,803 common shares to the owners of the accounting acquirer. However, the acquisition-date fair value of the consideration transferred by the accounting acquirer for its interest in the accounting acquiree is based on the number of equity interests the legal subsidiary would have had to issue to give the owners of the legal parent the same percentage equity interest in the combined entity that results from the reverse acquisition. Accordingly, the consideration transferred of \$358,138,773 was based on the following calculation:

- The assumption that MMI would have issued 44,885,634 shares to Torchlight in order for MMI shareholders to own approximately 70% of the outstanding Combined Company Stock at a share price of \$7.96, the closing share price of MMI on June 28, 2021 to equal \$357,289,644.
- Adding the fair value of deemed issuance of Torchlight options and warrants that were outstanding at the time of acquisition.
- Deducting the estimated fair value of the previously existing unsecured promissory notes issued by MMI to Torchlight of \$11,000,000 plus interest. These notes were effectively settled pursuant to the closing of the Arrangement.

The fair value of the number of equity interests calculated in that way can be used as the fair value of consideration transferred in exchange for the acquiree. The assets and liabilities of the legal acquiree are measured and recognized in the consolidated financial statements at their pre-combination carrying amounts.

Presentation of Consolidated Financial Statements Post Reverse Acquisition

The consolidated financial statements reflect all of the following:

- a) the assets and liabilities of the legal subsidiary (the accounting acquirer) recognized and measured at their pre-combination carrying amounts
- b) the assets and liabilities of the legal parent (the accounting acquiree) recognized and measured in accordance with ASC 805 *Business Combinations*
- c) the retained earnings and other equity balances of the legal subsidiary (accounting acquirer) before the business combination
- d) the amount recognized as issued equity interests in the consolidated financial statements determined by adding the issued equity interest of the legal subsidiary (the accounting acquirer) outstanding immediately before the business combination to the fair value of the legal parent (accounting acquiree). However, the equity structure (that is, the number and type of equity interests issued) reflects the equity structure of the legal parent (the accounting acquiree)

All references to common stock, options, deferred share units, and warrants as well as per share amounts have been retroactively restated to reflect the number of shares of the legal parent (accounting acquiree) issued in the reverse acquisition.

Pursuant to the completion of Torchlight RTO on June 28, 2021 and as a result of information presented post acquisition, the Company has made the following changes to the purchase price allocation previously disclosed in the interim financial statements for the three and six months ended June 30, 2021 in Form 10-Q:

- decreased the consideration by \$169,592 and reclassified the preferred stock liability from the consideration value to the acquired liabilities.
- decreased the value of the acquired oil and natural gas ("O&G") assets and the preferred stock liability by \$197,608 and \$5,306,354 respectively, to reflect the finalization of a third-party valuation study of the O&G assets as of June 28, 2021.
- decreased working capital by \$1,034,288 as a result of recording pre-acquisition receivable of \$3,404,866, liabilities of \$865,650 and reduce cash as of June 28, 2021 by \$3,573,504. The pre-acquisition receivable represents shares issued before acquisition date where the cash was received immediately after the acquisition date.
- As a result, the Goodwill balance has decreased by \$4,244,265.

The Company believes that information gathered to date provides a reasonable basis for estimating the fair value of assets acquired and liabilities assumed, however the Company is waiting for additional information necessary to finalize these fair values including assessment of any tax assets and liabilities and tax position in different jurisdictions. Therefore, the provisional measurements of fair value set forth below are subject to change. The Company expects to complete the purchase price allocation as soon as practicable but no later than one year from the acquisition date.

The following table summarizes the preliminary allocation of the purchase price to the net assets acquired based on the respective fair value of the acquired assets and liabilities:

	Amount
Fair value of deemed issuance of MMI's stock – Common Stock	\$ 82,814
Fair value of deemed issuance of MMI's stock – Additional paid in capital	357,206,830
Fair value of Torchlight's outstanding warrants – Additional paid in capital	2,773,778
Fair value of Torchlight's outstanding options – Additional paid in capital	9,397,988
Total Effect on Equity	369,461,410
Effective settlement of notes payable by MMI to Torchlight ¹	(11,322,637)
	<u>\$ 358,138,773</u>
Net assets (liabilities) of Torchlight:	
Cash and cash equivalents	\$ 143,381,229
Other assets	3,906,290
Oil and natural gas properties ²	72,600,000
Preferred stock liability ²	(72,600,000)
Accounts payable	(2,496,510)
Other liabilities	(21,937)
Goodwill ³	213,369,701
	<u>\$ 358,138,773</u>

1 Notes receivable/payable

Notes receivable or payable represent unsecured promissory notes previously issued by MMI to Torchlight between September 20, 2020 to February 18, 2021 for proceeds of \$11,000,000 plus interest. These notes have been eliminated upon acquisition and subsequent consolidation (see note 10 to these consolidated financial statements for further details).

2 Oil and natural gas properties and preferred stock liability

Valuation at acquisition

Acquired oil and natural gas properties include the Orogrande Project property in West Texas and the Hazel Project property in the Midland basin in West Texas. Refer to note 5 for additional details.

The Company engaged an independent valuation firm to assist in the determination of the fair value of the Orogrande Project property and the Hazel Project property as of June 28, 2021 and December 31, 2021.

The estimated fair value of the Orogrande Project property was calculated as the sum of the median of each of:

- a range of fair values of identified drilling locations determined using numerous assumptions including the number of drilling locations, forecasted production volumes per drilling location, fair value per barrel of forecasted production volumes based on comparable transactions or entities with acreage proximal to the Orogrande Project property, and applying a drilling location risk factor (collectively, "drilling location assumptions"); and

- a range of fair values of the undeveloped land acreage determined using numerous assumptions including the number of undeveloped land acres, fair value per acre for comparable transactions or entities with acreage proximal to the Orogrande Project property, and applying an acreage risk factor (collectively, “undeveloped land assumptions”).

The estimated fair value of the Hazel Project property was calculated using a discounted cash flow model. The significant estimates and assumptions used by the Company in the determination of the fair value of the Hazel Project property at acquisition date included forecasted production volumes, forecasted commodity prices, and the discount rate.

The Company valuation concluded an implied enterprise value as of June 28, 2021 to be between \$57.7 million and \$101.1 million. The Company recorded the fair value of the Orogrande Project property at \$71.1 million and the fair value of the Hazel Project property at \$1.5 million, totaling a value of \$72.6 million.

On June 11, 2021, Torchlight’s stockholders approved an amendment to its Articles of Incorporation to increase the authorized number of shares of Torchlight’s preferred stock, par value \$0.001 per share (“Preferred Stock”), from 10,000,000 shares to 200,000,000 shares. In addition, Torchlight’s Board of Directors formally declared the Preferred Dividend and set June 24, 2021 as the Dividend Record Date.

On June 25, 2021, the Company declared a dividend, on a one-for-one basis, of shares of Series A Non-Voting Preferred Stock (the “Series A Preferred Stock”) to holders of record of Torchlight’s common stock as of June 24, 2021. This preferred stock entitles its holders to receive certain dividends based on the net proceeds of the sale of any assets that are used or held for use in the Company’s oil and gas exploration business (the “O&G Assets”), subject to certain holdbacks. Such asset sales must occur prior to the earlier of (i) December 31, 2021 or (ii) the date which is six months from the closing of the Arrangement, or such later date as may be agreed between the Company and the individual appointed to serve as the representative of the holders of Series A Preferred Stock (the “Sale Expiration Date”). The Series A Preferred Stock will automatically be cancelled once the entitled dividends have been paid.

As a result, the fair value measurement of the oil and natural gas properties also forms the basis for the fair value measurement of the preferred stock liability as of June 28, 2021 and as of December 31, 2021. The preferred stock liability is accounted for in accordance with ASC 480 *Distinguishing Liabilities from Equity*.

2021 developments

After the closing of the merger transaction with Torchlight, the Company engaged in a series of activities related to the oil and gas assets to ensure that compliance with the relevant leases was maintained and that the lease rights retained their value in advance of a possible sale or other disposition. The activities over a 4-month period were focused on the obligation to drill four wells on the subject leased property by year-end 2021 to ensure continued compliance with the lease requirements. The activities included assembly of a team of professionals to manage the efforts, permitting, site preparation, drilling equipment rentals, pad preparations at each of the four sites and a variety of site clean-up, data summarization and similar activities. In 2021, the Company invested approximately \$14.2 million in these activities to preserve compliance and the value of the assets. These costs were initially capitalized and then assessed at December 31, 2021 to determine if an adjustment was required to the carrying value based on the updated fair value determination. In addition to the drilling activities, the Company organized a new wholly owned subsidiary to enable consolidation of the leases into one company to help facilitate any future sale or other disposition of the assets and provide additional structural alternatives for such sale or disposition.

Valuation at December 31, 2021

The Company continues to actively explore the sale of the assets or spinout, should a sale not occur. The Company estimated the fair value of the O&G assets by obtaining a valuation study performed by a third party valuation firm. The estimates involved are consistent with those outlined above as part of the acquisition. The valuation concluded an implied enterprise value as of December 31, 2021 to be between \$55.1 million and \$109.0 million. The Company recorded the fair value of the Orogrande Project property at \$72.0 million and the fair value of the Hazel Project property at \$3.5 million, totaling a value of \$75.5 million.

There are 164,923,363 outstanding Series A Non-Voting Preferred shares as of December 31, 2021.

3 Goodwill

Goodwill is attributed to the difference between the total consideration calculated above and deemed to be transferred by the accounting acquirer (MMI) and, the total net assets of the accounting acquiree (Torchlight). Based on the market value of META's Stock on June 28, 2021, this resulted in total "consideration" being transferred to Torchlight of approximately \$358.1 million. Further, the net assets of Torchlight acquired by MMI has been estimated to be approximately \$144.8 million. The difference between the \$358.1 million of consideration deemed to have been transferred and the \$144.8 million of net assets acquired results in goodwill of approximately \$213.4 million. Torchlight is delivering a NASDAQ listed legal entity in good standing that will provide the Company with ready access to significant capital sources in the future to fund its growth plans.

The company deemed it necessary to perform an annual test for impairment at December 31, 2021 due to market conditions. As at December 31, 2021 no impairment was found.

Revenue and losses from the Torchlight RTO since the acquisition date included in the consolidated statements of operations and comprehensive loss for the year ended December 31, 2021 were \$Nil and \$15.8 million respectively.

Unaudited pro forma results of operations for the years ended December 31, 2021 and 2020 are included below as if the Torchlight RTO occurred on January 1, 2020. This summary of the unaudited pro forma results of operations is not necessarily indicative of what the Company's results of operations would have been had Torchlight been acquired at the beginning of 2020, nor does it purport to represent results of operations for any future periods.

	Year ended December 31, 2021			Year ended December 31, 2020		
	META excluding Torchlight	Torchlight	Total	META	Torchlight	Total
Revenue	\$ 4,082,517	\$ 94,537	\$ 4,177,054	\$ 1,122,183	\$ 193,379	\$ 1,315,562
Net loss	(75,181,395)	(23,652,112)	(98,833,507)	(11,611,259)	(12,781,896)	(24,393,155)
Add back: acquisition cost	3,220,870	4,103,184	7,324,054	724,129	—	724,129
Adjusted net loss	<u>\$ (71,960,525)</u>	<u>\$ (19,548,928)</u>	<u>\$ (91,509,453)</u>	<u>\$ (10,887,130)</u>	<u>\$ (12,781,896)</u>	<u>\$ (23,669,026)</u>

Acquisition cost includes legal, accounting, and other professional fees related to the Torchlight acquisition.

Nanotech acquisition

On August 5, 2021, the Company announced the signing of a definitive agreement to indirectly acquire Nanotech Security Corp. ("Nanotech"). On October 5, 2021, a wholly-owned subsidiary of META purchased 100% of Nanotech's common stock at CA\$1.25 per share. In addition, the transaction price included the settlement of certain Nanotech share awards outstanding immediately prior to the closing of the agreement, including the repurchase and cancellation of 303,391 Nanotech restricted share units ("RSU") at a purchase price of CA\$1.25 per RSU and the settlement of 4,359,000 Nanotech in-the-money stock options at a purchase price equal to CA\$1.25 per option, less the exercise price thereof. The consideration payable to securityholders under the arrangement was payable in cash, resulting in a total purchase price of \$72.1 million (CA\$90.8 million).

The Company believes that information gathered to date provides a reasonable basis for estimating the fair value of assets acquired and liabilities assumed, however the Company is waiting for additional information necessary to finalize these fair values including assessment of any tax assets and liabilities and tax position in different jurisdictions. Therefore, the provisional measurements of fair value set forth below are subject to change. The Company expects to complete the purchase price allocation as soon as practicable but no later than one year from the acquisition date.

The preliminary allocation of consideration paid for the Nanotech acquisition is summarized as follows:

	Amount
Consideration paid to acquire Nanotech outstanding common stock	\$ 69,214,652
Consideration paid to repurchase Nanotech restricted stock units (RSUs)	300,610
Consideration paid to repurchase Nanotech stock options	2,612,035
	<u>\$ 72,127,297</u>
Net assets (liabilities) of Nanotech:	
Cash and cash equivalents	\$ 5,974,254
Accounts receivable	741,783
Trade payables	(1,349,139)
Prepaid expenses	271,741
Inventory	126,326
Property and equipment	14,771,456
Intangibles	25,309,847
Deferred tax liability	(859,394)
Goodwill	27,140,423
	<u>\$ 72,127,297</u>

The preliminary purchase price allocation is subject to change as additional information becomes available concerning the fair value and tax basis of the assets acquired and liabilities assumed, including certain contracts and obligations. Any additional adjustments to the purchase price allocation will be made as soon as practicable but no later than one year from the date of acquisition.

The estimated fair value of acquired assets and liabilities has been measured as at the acquisition date based on a valuation report provided by a third-party valuation expert.

Acquired property, plant and equipment acquired totaling \$14.8 million is comprised primarily of a production facility in Quebec, Canada with an estimated fair value of \$6.0 million, as well as specialized machinery and equipment with an estimated fair value of \$8.6 million.

Acquired intangible assets totaling \$25.3 million include a developed optical thin film technology intangible asset (\$0.2 million), a developed nanotechnology intangible asset (\$14.8 million) as well as a customer contract intangible asset for \$10.3 million. The significant estimates and assumptions used by the Company in the determination of the fair value of acquired intangible technology assets include the revenue growth rate, the royalty rate and the discount rate. The significant estimates and assumptions used by the Company in the determination of the fair value of the acquired customer contract intangible asset include the revenue growth rate and the discount rate.

The goodwill resulting from the transaction is attributable to different factors including assembled workforce, Nanotech's market potential, specific purchase synergies, technical know-how and expertise, customer service capabilities, geographical presence, and manufacturing capabilities.

Revenue and losses from the Nanotech acquisition since the acquisition date included in the consolidated statements of operations for the year ended December 31, 2021 were \$1.8 million and \$0.9 million respectively.

Unaudited pro forma results of operations for the years ended December 31, 2021 and 2020 are included below as if the Nanotech acquisition occurred on January 1, 2020. This summary of the unaudited pro forma results of operations is not necessarily indicative of what the Company's results of operations would have been had Nanotech been acquired at the beginning of 2020, nor does it purport to represent results of operations for any future periods.

	Year ended December 31, 2021			Year ended December 31, 2020		
	META excluding Nanotech	Nanotech	Total	META	Nanotech	Total
Revenue	\$ 2,237,470	\$ 7,755,350	\$ 9,992,820	\$ 1,122,183	\$ 5,944,983	\$ 7,067,166
Net loss	(90,279,119)	(2,942,395)	(93,221,514)	(11,611,259)	(1,040,463)	(12,651,722)
Add back: acquisition cost	1,837,796	1,646,522	3,484,318	—	—	—
Deduct: additional depreciation and amortization	—	(3,143,659)	(3,143,659)	—	(3,844,899)	(3,844,899)
Adjusted net loss	\$ (88,441,323)	\$ (4,439,532)	\$ (92,880,855)	\$ (11,611,259)	\$ (4,885,362)	\$ (16,496,621)

Acquisition cost includes legal, accounting, and other professional fees related to the Nanotech acquisition. Additional depreciation and amortization is based on the above-mentioned valuation report that was performed as at October 5, 2021.

CPM RTO

As outlined in note 1, on August 16, 2019, MTI entered into an Amalgamation Agreement (“Amalgamation Agreement”) with CPM, a Canadian public company listed on the CSE in relation to a Reverse Takeover transaction of CPM by MTI (“CPM RTO”). On October 10, 2019, CPM shareholders approved matters ancillary to the transaction and on November 25, 2019, MTI shareholders approved the CPM RTO. Subject to an amendment to the Amalgamation Agreement dated March 4, 2020, the CPM RTO was completed on March 5, 2020.

The CPM RTO was completed by the way of three-cornered amalgamation, whereby MTI was amalgamated with CPM Subco and holders of stock of MTI received common stock of MMI as consideration. Pursuant to the Amalgamation Agreement, the holders of the common stock of MTI (“MTI Common Stock”) and holders of MTI's Class A-1 preferred stock of MTI received MMI Common Stock in exchange for their MTI Common Stock at a ratio of 2.75 MMI Common Stock for each MTI Common Share or Class A-1 Preferred share held. Also pursuant to the Amalgamation Agreement, the holders of MTI's Class A-2 preferred stock received 4.125 Resultant Issuer Common Stock for each Class A-2 preferred share held.

Upon completion of the CPM RTO, all of MTI's outstanding options, deferred share units and other securities exercisable or exchangeable for, or convertible into, and any other rights to acquire MTI Common Stock were exchanged for securities exercisable or exchangeable for, or convertible into, or other rights to acquire MMI Common Stock. Immediately

following the completion of the CPM RTO, the former security holders of MTI owned approximately 86% of the Resulting Issuer Common Stock, on a fully diluted basis; accordingly, the former shareholders of MTI, as a group, retained control of MMI, and while CPM was the legal acquirer of MTI, MTI was deemed to be the acquirer for accounting purposes. As CPM did not meet the definition of a business as defined in ASC 805—*Business Combinations*, the acquisition is not within the scope of ASC 805 and was considered to be a reverse recapitalization.

Reverse recapitalization accounting applies when a non-operating public shell company (CPM) acquires a private operating company (MTI) and the owners and management of the private operating company have actual or effective voting and operating control of the combined company. A reverse recapitalization is equivalent to the issuance of stock by the private operating company for the net monetary assets of the public shell corporation accompanied by a recapitalization with accounting similar to that resulting from a reverse acquisition, except that no goodwill or other intangible assets are recorded.

Since the transaction was treated as capital transaction in substance, the consideration transferred was assumed to equal the fair value of CPM's net monetary assets of \$3,110,834. Consideration transferred was then allocated between stock and options based on the fair value of the options deemed to have been issued. Accordingly, \$212,566 has been allocated to options as outlined in consolidated Statements of changes in stockholders' equity with the remainder \$2,898,268 allocated to common stock.

The carrying value of CPM's assets and liabilities have been assumed to approximate their fair values, due to their short-term nature. The following table summarizes the monetary assets acquired and liabilities assumed using the March 5, 2020 exchange rate of \$1.00 CAD = \$0.7454 USD:

	Amount
Cash and cash equivalents	\$ 3,112,172
Marketable securities	3,274
Accounts receivable	20,277
Accounts payable and accrued liabilities	(24,889)
	<u>\$ 3,110,834</u>

The fair value of CPM's 700,000 options issued has been estimated using the Black-Scholes option pricing model with the following assumptions:

	Amount
Risk free interest rate	0.83% - 0.96%
Expected volatility	117% -134%
Expected dividend yield	0%
Expected forfeiture rate	0%
Fair value of Resulting Issuer Common Share	CA\$0.62
Exercise price of the options	CA\$0.35
Expected term for directors resigning from CPM board	6 months
Expected term for a director continuing as Resulting Issuer director	8 years

Revenue and losses from the CPM RTO since the acquisition date were Nil since acquisition.

4. Related party transactions

As of December 31, 2021 and December 31, 2020, receivables due from a related party (Lamda Guard Technologies Ltd, or "LGTL") were for a nominal amount and \$nil, respectively. On March 16, 2021, MMI converted an amount of \$0.3 million owing to LGTL into 81,584 MMI common stock for a price per share of CA\$4.51. The conversion price

of CA\$4.51 per share represented a 10% premium to the CA\$4.10 closing price of MMI stock on the CSE at the close of business on March 12, 2021. MMI has recognized \$0.2 million in common stock in the consolidated statements of changes in stockholders' equity at fair value at the time of conversion and recorded the difference of \$0.1 million between the fair value of the common stock and the carrying value of the extinguished liability as a loss on debt settlement in the consolidated statements of operations and comprehensive loss.

As of December 31, 2021, and 2020, related party payables due to LGTL were \$Nil and \$0.2 million respectively.

5. Assets held for sale

As of December 31, 2021, assets held for sale represented the acquired oil and natural gas properties from the Torchlight RTO. Refer to note 3 for details of the fair value determination.

Orogrande Project, West Texas

On August 7, 2014, Torchlight entered into a Purchase Agreement with Hudspeth Oil Corporation ("Hudspeth"), McCabe Petroleum Corporation ("MPC"), and Gregory McCabe, Torchlight prior Chairman. Mr. McCabe was the sole owner of both Hudspeth and MPC. Under the terms and conditions of the Purchase Agreement, Torchlight purchased 100% of the capital stock of Hudspeth which held certain oil and gas assets, including a 100% working interest in approximately 172,000 predominately contiguous acres in the Orogrande Basin in West Texas. Mr. McCabe has, at his option, a 10% working interest back-in after payout and a reversionary interest if drilling obligations are not met, all under the terms and conditions of a participation and development agreement among Hudspeth, MPC and Mr. McCabe. Mr. McCabe also holds a 4.5% overriding royalty interest in the Orogrande acreage, which he obtained prior to, and was not a part of the August 2014 transaction.

Effective March 27, 2017, the property became subject to a DDU Agreement which allows for all 192 existing leases covering approximately 134,000 net acres leased from University Lands to be combined into one drilling and development unit for development purposes. The term of the DDU Agreement expires on December 31, 2023, and the time to drill on the drilling and development unit continues through December 2023. The DDU Agreement also grants the right to extend the DDU Agreement through December 2028 if compliance with the DDU Agreement is met and the extension fee associated with the additional time is paid.

On July 25, 2018, Torchlight and Hudspeth entered into a Settlement & Purchase Agreement (the "Settlement Agreement") with Founders (and Founders Oil & Gas Operating, LLC, former Operator), Wolfbone and MPC (entities controlled by Torchlight prior Chairman), which agreement provided for Founders assigning all of its working interest in the oil and gas leases of the Orogrande Project to Hudspeth and Wolfbone equally. Future well capital spending obligations remained the same 50% contribution from Hudspeth and 50% from Wolfbone until such time as the \$40.5 million to be spent on the project.

The Company's outstanding drilling obligations includes five wells in 2022 and 2023. All drilling obligations through December 31, 2021 have been met. The drilling obligations are minimum yearly requirements and may be exceeded if acceleration is desired.

The Orogrande Project ownership as of December 31, 2021 is detailed as follows:

	Revenue Interest	Working Interest
University Lands - Mineral Owner	20.00%	n/a
ORRI - Magdalena Royalties, LLC, and entity controlled by Gregory McCabe, Chairman	4.50%	n/a
ORRI - Unrelated Party	0.50%	n/a
Hudspeth Oil Corporation, a subsidiary of Meta Materials Inc.	49.88%	66.50%
Wolfbone Investments LLC, and entity controlled by Gregory McCabe, Chairman	18.75%	25.00%
Conversion by Note Holders in March, 2020	4.50%	6.00%
Unrelated Party	1.88%	2.50%
	100.00%	100.00%

Hazel Project in the Midland Basin in West Texas

Effective April 4, 2016, a wholly owned subsidiary of Torchlight acquired from MPC a 66.66% working interest in approximately 12,000 acres in the Midland Basin. A back-in after payout of a 25% working interest was retained by MPC and another unrelated working interest owner.

In October 2016, the holders of Torchlight's outstanding shares of Series C Preferred Stock (which were issued in July 2016) elected to convert into a total 33.33% working interest in the Hazel Project, reducing Torchlight ownership from 66.66% to a 33.33% working interest.

On January 30, 2017, Torchlight entered into and closed an Agreement and Plan of Reorganization and a Plan of Merger with an entity which was wholly-owned by Mr. McCabe, which resulted in the acquisition of approximately 40.66% working interest in the 12,000 gross acres, 9,600 net acres, in the Hazel Project.

Also, on January 30, 2017, the Company entered into and closed a Purchase and Sale Agreement with Wolfbone. Under the agreement, Torchlight acquired certain of Wolfbone's Hazel Project assets, including its interest in the Flying B Ranch #1 well and the 40 acre unit surrounding the well.

Upon the closing of the transactions, Torchlight's working interest in the Hazel Project increased by 40.66% to a total ownership of 74%.

Effective June 1, 2017, Torchlight acquired an additional 6% working interest from unrelated working interest owners increasing its working interest in the Hazel project to 80%, and an overall net revenue interest of 74-75%.

The Company has drilled six test wells on the Hazel Project to capture and document the scientific base in support of demonstrating the production potential of the property.

Option Agreement with Masterson Hazel Partners, LP

On August 13, 2020, Torchlight's subsidiaries Torchlight Energy, Inc. and Torchlight Hazel, LLC (collectively, "Torchlight") entered into an option agreement (the "Option Agreement") with Masterson Hazel Partners, LP ("MHP") and McCabe Petroleum Corporation. Under the agreement, MHP was obligated to drill and complete, or cause to be drilled and completed, at its sole cost and expense, a new lateral well (the "Well") on the Hazel Project, sufficient to satisfy Torchlight's continuous development obligations on the southern half of the prospect no later than September 30, 2020. MHP has satisfied this drilling obligation. MHP paid to Torchlight \$1,000 as an option fee at the time of execution of the Option Agreement. MHP is entitled to receive, as its sole recourse for the recoupment of drilling costs, the revenue from production of the Well attributable to Torchlight's interest until such time as it has recovered its reasonable costs and expenses for drilling, completing, and operating the well.

In exchange for MHP satisfying the above drilling obligations, Torchlight granted to MHP the exclusive right and option to perform operations, at MHP's sole cost and expense, on the Hazel Project sufficient to satisfy Torchlight's continuous development obligations on the northern half of the prospect. Because MHP exercised this drilling option and satisfied the continuous development obligations on the northern half of the prospect, under the terms of the Option Agreement (as amended in September 2020) MHP had the option to

purchase the entire Hazel Project no later than May 31, 2021 under the terms of a form of Purchase and Sale Agreement included as an exhibit to the Option Agreement, at an aggregate purchase price of \$12,690,704 for approximately 9,762 net mineral acres, and not less than 74% net revenue interest (approximately \$1,300 per net mineral acre). The option expired unexercised and concurrently, all of the Hazel Project leases expired except for those leases relating to the two producing wells. The continuing leases cover approximately 645 gross acres, 516 net acres, in the Hazel Project.

Hunton Play, Central Oklahoma

Presently, the Company is producing from one well in the Viking Area of Mutual Interest and one well in Prairie Grove. These assets were not included in the valuation by a third party valuation firm given their nominal value.

6. Inventory

Inventory consists of photosensitive materials, lenses, laser protection film and finished eyewear, and is comprised of the following:

	As of December 31,	
	2021	2020
Raw materials	\$ 196,868	\$ 378,265
Supplies	8,886	14,414
Work in process	30,636	69,380
Finished goods	29,328	1,323
Total inventory	<u>\$ 265,718</u>	<u>\$ 463,382</u>

The Company has a contract with a primary raw material supplier which outlines certain restrictions for use of the associated materials. Raw material inventory as at December 31, 2021 includes \$Nil (2020 - \$0.3 million) that is restricted.

The Company expensed \$0.2 million of restricted raw materials inventory to research and development expense during the year ended December 31, 2021 (2020 - \$0.2 million).

During the year ended December 31, 2021, the Company recognized \$0.7 million (2020 - Nominal amount) of inventory in cost of goods sold in the consolidated statements of operations and comprehensive loss.

7. Prepaid expenses and other current assets

Prepaid expenses and other current assets consist of the following:

	As of December 31,	
	2021	2020
Prepaid expenses	\$ 1,262,112	\$ 227,425
Other current assets	683,044	134,466
Taxes receivable	1,506,211	152,312
Total prepaid expenses and other current assets	<u>\$ 3,451,367</u>	<u>\$ 514,203</u>

8. Property, plant and equipment, net

Property, plant and equipment consist of the following:

	Useful life (years)	As of December 31,	
		2021	2020
Land	N/A	\$ 469,317	\$ —
Building	25	5,509,403	—
Computer equipment	3-5	262,320	163,856
Computer software	1	277,717	256,554
Manufacturing equipment	2-10	17,762,405	6,645,986
Office furniture	5-7	525,961	99,234
Leasehold improvements	2-5	236,251	—
Enterprise Resource Planning software	5	211,149	210,254
Assets under construction	N/A	8,872,695	424,393
		34,127,218	7,800,277
Accumulated depreciation and impairment		(7,109,104)	(5,039,106)
		<u>\$ 27,018,114</u>	<u>\$ 2,761,171</u>

Depreciation expense was \$1.8 million and \$1.6 million for the year ended December 31, 2021 and 2020, respectively.

Impairment expense was \$0.3 million and \$Nil for the year ended December 31, 2021 and 2020 respectively.

Land and building were acquired as part of the Nanotech acquisition.

Manufacturing equipment additions include \$8.6 million of acquired equipment as part of the Nanotech acquisition, \$1.4 million in purchased equipment for the Highfield Park facility in Nova Scotia, Canada and \$1.2 million in equipment purchased for the NANOWEB® pilot scale production line in the facility in Pleasanton, California, USA.

Assets under construction include \$5.4 million in costs related to ongoing construction work at the Highfield Park and Pleasanton facilities and \$3.6 million of equipment in transit.

Property, plant and equipment is pledged as security under a General Security Agreement (a “GSA”) signed in favor of the Royal Bank of Canada (“RBC”) on July 14, 2014, which is related to the Company’s corporate bank account and credit card and includes all property, plant and equipment and intangible assets.

9. Intangible Assets and Goodwill

Intangibles

Intangibles consist of the following:

	Useful life (years)	As of December 31,	
		2021	2020
Patents	5-10	\$ 7,839,182	\$ 6,954,657
Trademarks	N/A	132,636	72,804
Developed technology	20	14,931,377	—
Customer contract	5	10,253,983	—
		33,157,178	7,027,461
Accumulated amortization and impairment		(4,185,354)	(2,550,847)
		<u>\$ 28,971,824</u>	<u>\$ 4,476,614</u>

Amortization expense was \$1.7 million and \$0.8 million for the years ended December 31, 2021 and 2020, respectively.

Developed technology and customer contract additions represent the acquired intangibles as part of the Nanotech acquisition.

Goodwill

During the year ended December 31, 2021, the Company recognized \$213.4 million in goodwill from the Torchlight RTO and \$27.1 million in goodwill from the Nanotech acquisition.

The Company performs the annual impairment test for goodwill at year-end, by comparing the reporting unit's fair value to its carrying amount, including goodwill, as of December 31, 2021, using the market approach to determine fair value. As the reporting unit's fair value exceeded its carrying amount, the Company determined that goodwill was not impaired. The key assumption used to calculate the recoverable amount of goodwill as of December 31, 2021 was the Company's share price.

10. Unsecured convertible promissory notes

	Year ended December 31, 2021			Year ended December 31, 2020		
	Bridge loan (a)	Torchlight (b)	Total	Bridge loan (a)	Torchlight (b)	Total
Beginning balance	\$ 538,020	\$ 665,215	\$ 1,203,235	\$ —	\$ —	\$ —
Issued	3,963,386	10,000,000	13,963,386	378,042	1,000,000	1,378,042
Interest accrued	17,804	329,965	347,769	2,698	12,701	15,399
Fair value loss (gain)	19,163,417	333,947	19,497,364	139,609	(354,839)	(215,230)
Unrealized fair value loss (gain) due to own credit risk	—	(5,554)	(5,554)	—	14,132	14,132
Unrealized foreign currency exchange gain	—	(258,480)	(258,480)	—	(23,849)	(23,849)
Foreign currency translation adjustment	(26,262)	257,544	231,282	17,671	17,070	34,741
Conversion to common stock	(23,656,365)	—	(23,656,365)	—	—	—
Elimination pursuant to Torchlight RTO (note 3)	—	(11,322,637)	(11,322,637)	—	—	—
Ending balance	<u>\$ -</u>	<u>\$ -</u>	<u>\$ -</u>	<u>\$ 538,020</u>	<u>\$ 665,215</u>	<u>\$ 1,203,235</u>

a) In November 2020, MMI entered into a commitment letter (the “Commitment Letter”) with a shareholder, pursuant to which the shareholder will provide up to CA\$5,500,000 in debt financing (the “Bridge Loan”) to fund MMI’s continued operations while MMI worked toward completion of the Proposed Transaction with Torchlight. Pursuant to the Commitment Letter, MMI was able to draw up to CA\$500,000 monthly beginning in November 2020. The Bridge Loan bore interest at the rate of 8% per annum, payable monthly in arrears. The principal amount and any accrued but unpaid interest was due and payable on the 10th business day after the closing of the Proposed Transaction, or on November 29, 2022, if the Transaction did not close before that date. At the option of the holder, the Bridge Loan, or any portion of the Bridge Loan and accrued but unpaid interest was convertible into MMI Common Stock at a conversion price of CA\$0.50 per share, subject to customary adjustments. MMI had the option to repay the Bridge Loan in whole or in part, without penalty, at any time on or after March 28, 2021.

MMI elected to measure the financial instrument at fair value. MMI subsequently remeasured the instrument on December 31, 2020 and recorded fair value loss of \$139,609 in the statements of operations. There was no change in instrument specific credit risk.

On February 16, 2021, the total Bridge Loan of \$4,361,930 of principal and accrued interest was converted at CA\$0.50 per share into 20,391,239 common shares, in accordance with the terms of the bridge financing. MMI has remeasured the instrument as of the conversion date and recognized a non-cash realized fair value loss of \$19,163,417 and the full amount of \$23,656,365 was reclassified into the consolidated statements of changes in stockholders’ equity.

b) On September 15, 2020, MMI entered into a non-binding Letter of Intent (the “LOI”) with Torchlight pursuant to which Torchlight loaned MMI three unsecured convertible promissory notes totaling \$11,000,000. These Unsecured Convertible Promissory Notes bore interest at 8% annually, with principal and interest due and payable on the maturity date. If MMI and Torchlight had not entered into a Definitive Agreement, or the Definitive Agreement were terminated, then the Unsecured Convertible Promissory Notes and all

accrued and unpaid interest were convertible at the option of the holder into common stock of the Company at the conversion prices set out below. The Company had the option to repay all or part of the Unsecured Convertible Promissory Notes, plus any accrued and unpaid interest, without penalty on or after 120 days from the note issuance date.

	Tranche 1		Tranche 2		Tranche 3	
Face value of notes issued	\$	500,000	\$	500,000	\$	10,000,000
Issuance date	September 20, 2020		December 16, 2020		February 18, 2021	
Maturity date	September 20, 2022		December 16, 2022		February 18, 2022	
Interest rate	8%		8%		8%	
Conversion price	CA\$0.35		CA\$0.62		CA\$2.80	

The conversion option was a foreign currency embedded derivative as the note was denominated in USD and the conversion price was in Canadian dollars. MMI elected to measure the financial instrument at fair value. MMI subsequently remeasured the instrument on March 31, 2021, and recorded fair value gain of \$197,527, of which \$5,554 was a gain recorded in other comprehensive income relating to instrument specific credit risk and \$191,973 was a gain recorded in the statements of operations.

As part of the closing of the Arrangement, the promissory notes were remeasured at fair value and a fair value loss of \$525,920 was recorded in the statements of operations and comprehensive loss. The notes were considered part of the consideration transferred (see note 3) and were eliminated upon acquisition and subsequent consolidation. In addition, the related accumulated fair value losses in OCI of \$9,011 were recycled to the statements of operations and comprehensive loss.

11. Secured convertible debentures

	Year ended December 31,	
	2021	2020
Beginning balance	\$ 5,545,470	\$ —
Issued	—	3,630,019
Interest accrued	121,860	508,757
Interest paid	(64,528)	(285,154)
Fair value loss	16,408,482	511,699
Fair value loss—own credit	—	865,280
Foreign currency translation adjustment	107,498	314,869
Conversion to common stock	(22,118,782)	—
Ending balance	\$ —	\$ 5,545,470

On April 3, 2020, MMI issued CA\$5,000,000 in Secured Debentures to BDC Capital Inc. (“BDC”), a wholly owned subsidiary of the Business Development Bank of Canada. The Secured Debentures mature on October 31, 2024, and bear interest at a rate of 10.0% per annum, payable monthly in cash. In addition to the cash interest, the Secured Debentures accrued a non-compounding payment in kind (“PIK”) of 8% per annum. The PIK may be reduced by up to 3% (reduced to as low as 5% per annum) upon meeting certain conditions. BDC may elect to have the PIK paid in cash.

The Secured Debentures and the PIK are convertible in full or in part, at BDC’s option, into MMI common stock at any time prior to their maturity at a conversion price of CA\$0.70 (the “Conversion Price”) or MMI may force the conversion of Secured Debentures if MMI’s common stock are trading on the CSE on a volume-weighted average price greater than 100% of the Conversion Price (i.e. greater than CA\$1.40) for any 20 consecutive trading days with a minimum daily volume of at least 100,000 Common Stock.

MMI elected to measure the financial instrument at fair value. MMI subsequently remeasured the instrument on December 31, 2020, and recorded a fair value loss of \$1,376,979, of which \$511,699 was recorded in other comprehensive income relating to instrument specific credit risk and \$865,280 was recorded in the statements of operations.

The secured debentures were subject to a covenant clause, whereby MMI was required to maintain a working capital ratio of no less than 3:1. The working capital ratio excluded deferred revenue and deferred government assistance from current liabilities. MMI did not fulfil the ratio as required in the contract and consequently, the secured debentures were reclassified as a current liability as at December 31, 2020.

On March 3, 2021, MMI forced the conversion of the Secured Debentures pursuant to the terms of the agreement with BDC. The total debentures balance of \$3,910,954 was converted at CA\$0.70 per share into 14,155,831 common shares. MMI remeasured the liability as of the conversion date and recognized a non-cash realized fair value loss of \$16,408,482 and the full amount of \$22,118,782 was reclassified into the consolidated statements of changes in stockholders’ equity. All security interests held by BDC on assets of MMI were immediately discharged.

In addition, the accumulated losses in OCI of \$511,699 were recycled to the statements of operations and comprehensive loss.

12. Unsecured convertible debentures

Unsecured convertible debentures (the “Unsecured Debentures”) consist of the following:

	Year ended December 31,	
	2021	2020
Beginning balance	\$ 1,825,389	\$ 585,267
Issued	—	693,784
Interest accrued	23,660	147,304
Fair value loss	3,914,931	189,708
Fair value loss due to own credit risk	—	154,347
Foreign currency translation adjustment	5,495	54,979
Conversion to common stock	(5,769,475)	—
Ending balance	\$ —	\$ 1,825,389

On December 10, 2019, an agreement was signed to convert an existing CA\$250,000 short-term loan into an Unsecured Debenture, and also during December 2019, MMI issued an additional CA\$500,000 in Unsecured Debentures to the same investor, under the same terms.

During the year ended December 31, 2020, MMI issued an additional CA\$950,000 (US \$693,784) in Unsecured Debentures to individuals and companies under the same terms as previous issues.

The Unsecured Debentures bear interest at a fixed rate of 1% per month, compounding monthly and have a maturity date of April 30, 2025. Each Unsecured Debenture is convertible at the option of the holder into MMI common stock at a price of CA\$0.70 per share. Following completion of the RTO, MMI may elect to repay the outstanding amounts owing under the Unsecured Debentures in cash or in stock at a conversion price of CA\$0.70 upon meeting certain conditions or the holder can convert the Unsecured Debentures at CA\$0.70 or the Unsecured Debentures can be converted at maturity at the greater of 80% of the 10 day volume-weighted average price of the Resulting Issuer’s common stock or the closing price on the preceding trading day less the maximum permitted discount by the exchange.

MMI elected to measure the financial instrument at fair value. MMI subsequently remeasured the instrument on December 31, 2020 and recorded a fair value loss of \$344,055, of which \$154,347 was recorded in other comprehensive income relating to instrument specific credit risk and \$189,708 was recorded in the statements of operations.

On February 16, 2021, MMI converted \$1,439,103 of principal and accrued interest of Unsecured Debentures at CA\$0.70 per share into 5,105,338 common shares in accordance with the terms of their debt instruments. MMI remeasured the liability as of the conversion date and recognized a non-cash realized fair value loss of \$3,914,931 and the full amount of \$5,769,475 was reclassified into the consolidated statements of changes in stockholders’ equity.

In addition, the accumulated losses in OCI of \$154,347 were recycled to the statements of operations.

13. Long-term debt

	As of December 31,	
	2021	2020
'ACOA Business Development Program ("BDP") 2012 interest-free loan ¹ with a maximum contribution of CA\$500,000, repayable in monthly repayments commencing October 1, 2015 of CA\$5,952 until June 1, 2023. Loan repayments were temporarily paused effective April 1, 2020 until January 1, 2021 as a result of the COVID-19 outbreak. As at December 31, 2021, the amount of principle drawn down on the loan, net of repayments, is CA\$107,143 (2020 - CA\$178,571).	\$ 80,390	\$ 129,384
'ACOA Atlantic Innovation Fund ("AIF") 2015 interest-free loan ² with a maximum contribution of CA\$3,000,000. Annual repayments, commencing June 1, 2021, are calculated as a percentage of gross revenue for the preceding fiscal year, at Nil when gross revenues are less than CA\$1,000,000, 5% when gross revenues are less than CA\$10,000,000 and greater than CA\$1,000,000, and CA\$500,000 plus 1% of gross revenues when gross revenues are greater than CA\$10,000,000. As at December 31, 2021, the amount or principle drawn down on the loan, net of repayments, is CA\$2,924,615 (2020 - CA\$3,000,000).	1,666,764	1,458,954
ACOA BDP 2018 interest-free loan ³ with a maximum contribution of CA\$3,000,000, repayable in monthly repayments commencing June 1, 2021 of CA\$31,250 until May 1, 2029. As at December 31, 2021, the amount of principle drawn down on the loan, net of repayments, is CA\$2,781,250 (2020 - CA\$3,000,000).	1,319,130	1,285,307
ACOA BDP 2019 interest-free loan ¹ with a maximum contribution of CA\$100,000, repayable in monthly repayments commencing June 1, 2021 of CA\$1,400 until May 1, 2027. As at December 31, 2021, the amount of principle drawn down on the loan, net of repayments, is CA\$90,278 (2020 - CA\$62,165).	42,011	30,138
ACOA Regional Relief and Recovery Fund ("RRRF") 2020 interest-free loan with a maximum contribution of CA\$390,000, repayable on monthly repayments commencing April 1, 2023 of CA\$11,000 until April 1, 2026. As at December 31, 2021, the amount of principle drawn down on the loan is CA\$390,000 (2020 - \$Nil).	120,154	—
CAIXA Capital loan bearing interest at 6-month EURIBOR rate plus 4% interest spread. The loan principal and interest are fully repayable on January 15, 2025. On March 12, 2021, the principal loan balance with outstanding interest totaling \$209,506 (EUR 171,080) was converted into MMI common stock at \$3.87 per share ⁴ . Pursuant to the conversion, CAIXA Capital was issued 67,597 MMI common shares.	—	130,265
	3,228,449	3,034,048
Less: current portion	491,278	290,544
	<u>\$ 2,737,171</u>	<u>\$ 2,743,504</u>

¹ The Company was required to maintain a minimum balance of positive equity throughout the term of the loan. However, on November 14, 2019, ACOA waived this requirement for the period ending June 30, 2019 and for each period thereafter until the loan is fully repaid.

² The carrying amount of the ACOA AIF loan is reviewed each reporting period and adjusted as required to reflect management's best estimate of future cash flows, discounted at the original effective interest rate.

³ A portion of the ACOA BDP 2018 loan was used to finance the acquisition and construction of manufacturing equipment resulting in \$425,872 was recorded as deferred government assistance, which is being amortized over the useful life of the associated equipment. The Company recorded the amortization expense for the year ended December 31, 2021 of \$145,739 (year ended December 31, 2020—\$136,320) as government assistance in the consolidated statements of operations and comprehensive loss.

⁴ MMI has recognized the common stock issued in the consolidated statements of changes in stockholders' equity at fair value at time of conversion to be \$221,842 and recorded the difference of \$88,763 between the fair value of the common stock and the carrying value of the long-term debt as loss on debt settlement in the consolidated statements of operations and comprehensive loss.

14. Capital stock

Common stock

Authorized: 1,000,000,000 common shares, \$0.001 par value.

All references to numbers of common shares and amounts in the consolidated statements of changes in stockholder's equity and in the notes to the consolidated financial statements have been retroactively restated to reflect as if the CPM RTO and the Torchlight RTO had taken place as of the beginning of the earliest period presented.

- The numbers of common shares issued pre-CPM RTO have been multiplied by the 2.75 CPM conversion ratio and the 1.845 Torchlight conversion ratio.
- The numbers of common shares issued post-CPM RTO have been multiplied by the 1.845 Torchlight conversion ratio.
- The amounts of common shares issued pre-CPM RTO were calculated by multiplying the number of shares by 0.001, the 2.75 CPM conversion ratio and the 1.845 Torchlight conversion ratio and the difference was recognized in additional paid in capital.
- The amounts of common shares issued post-CPM RTO were calculated by multiplying the number of shares by 0.001 and the 1.845 Torchlight conversion ratio and the difference were recognized in additional paid in capital.

During the year ended December 31, 2021, the Company converted unsecured convertible promissory notes of \$23,656,365, secured convertible debentures of \$22,118,782, and unsecured convertible debentures of \$5,769,475 into common stock. The Company remeasured the financial liabilities at fair value as of respective conversion dates and recognized a non-cash realized loss of \$39,486,830. The Company subsequently reclassified the remeasured liabilities into equity and recognized \$39,652 in common stock and \$51,504,970 in additional paid in capital. The number of shares issued was calculated as the total outstanding principal and interest of each liability divided by the conversion price stated in each respective instrument's agreement.

During the year ended December 31, 2021, the Company converted long-term debt of \$221,843 and due to related party of \$225,986 into common stock. The Company recorded the common stock issued at fair value using the Company's share price at the time of conversion. The Company recognized \$276 in common stock and \$447,553 in additional paid in capital. The resulting net loss calculated as the difference between the fair value of common stock and the carrying value of the liabilities of \$19,330 was recorded in other income in the consolidated statements of operations and comprehensive loss. The number of shares issued was calculated as the total outstanding principal and interest of each liability multiplied by the agreed upon conversion price.

During the year ended December 31, 2021, the Company issued 286,292 common shares at CA\$0.58 per share as compensation in exchange for a fairness opinion obtained with respect to the Torchlight RTO. The company paid CA \$90,000 in cash in 2020 and agreed to settle the remaining CA \$90,000 in common stock. The Company recognized the share-based payment in trade and other payables in 2020 until the shares were issued in 2021.

During the year ended December 31, 2021, and pursuant to the Torchlight RTO, the Company recognized \$369,631,002 in equity as the fair value of 82,813,994 common shares that were deemed to have been issued to Torchlight as part of the Torchlight RTO (note 3).

During the year ended December 31, 2021, the Company issued 148,368 common shares as stock-based compensation at \$3.37 per share to a service provider. The total amount of \$500,000 was recorded as prepaid expenses and is being amortized over the period of service.

During the year ended December 31, 2021, the Company issued 125,000 common shares as stock-based compensation at \$5.27 per share for a total of \$658,750 as partial compensation for a fairness opinion obtained with respect to the Nanotech acquisition. The company paid the remaining \$511,406 in cash.

During the year ended December 31, 2020 and pursuant to the CPM RTO, all preferred shares were converted into 58,153,368 common shares.

During the year ended December 31, 2020, the aggregate principal of the Secured Promissory Notes and all interest accrued up until January 28, 2020 were converted into 17,752,163 common shares.

During the year ended December 31, 2020, and pursuant to the CPM RTO, the Company recognized \$3,214,502 in equity as the fair value of 21,599,223 common shares that were deemed to have been issued to CPM as part of the CPM RTO.

At-the-Market Equity Offering Program ("ATM")

On June 16, 2021, Torchlight Energy Resources, Inc. ("Torchlight") entered into a Sales Agreement (the "Sales Agreement") with Roth Capital Partners, LLC (the "Agent") to conduct an "at-the-market" equity offering program pursuant to which the Company may issue and sell, from time to time at its sole discretion, shares (the "Placement Shares") of its common stock, par value \$0.001 per share, having an aggregate offering price of up to \$100,000,000 (the "Shares"), through or to the Agent, as the Company's sales agent. Subject to the terms and conditions of the Sales Agreement, the Agent will use its commercially reasonable efforts to sell the Shares from time to time, based upon the Company's instructions. The Company has no obligation to sell any of the Shares, and may, at any time, suspend the sale of the Shares under the Sales Agreement upon proper notice to the other party. The Sales Agreement will terminate upon the issuance and sale of all of the Shares through or to the Agent, unless earlier terminated in accordance with its terms.

On June 21, 2021, the Sales Agreement was amended and restated to increase the aggregate offering price to up to \$250,000,000.

The Company has provided the Agent with customary indemnification rights, and the Agent will be entitled to an aggregate fixed commission of 3.0% of the gross proceeds from Shares sold through the Agent under the Sales Agreement. Sales of the Shares under the Sales Agreement will be made in transactions that are deemed to be "at-the-market offerings" as defined in Rule 415 under the Securities Act of 1933, as amended, including sales made by means of ordinary brokers' transactions, including on The NASDAQ Capital Market, at market prices or as otherwise agreed to with the Agent.

The Shares have been registered under the Securities Act of 1933, as amended, pursuant to the Registration Statement on Form S-3 (No. 333-256632) filed by the Company with the Securities and Exchange Commission (the "SEC") on May 28, 2021, and declared effective on June 14, 2021 (the "Registration Statement"). The Company has prepared a prospectus supplement dated June 16, 2021 and a prospectus supplement dated June 21, 2021 specifically relating to the Placement Shares to the base prospectus included as part of such registration statement.

During the period from June 16, 2021 to June 25, 2021 and prior to the Torchlight RTO, Torchlight sold a total of 16,185,805 shares of common stock under the ATM for aggregate gross proceeds of approximately \$137.5 million. There was no sale of common stock under the ATM after June 28, 2021.

Warrants

Prior to completion of the CPM RTO on March 5, 2020, every two warrants had the right to purchase one MTI common share for CA\$2.475 per share.

Pursuant to the completion of the RTO on March 5, 2020, MTI warrants were adjusted such that one warrant has the right to purchase one MMI Common Share for CA\$0.90 per share.

On June 28, 2021 and pursuant to the completion of Torchlight RTO, each MMI warrant was converted into 1.845 META warrants and the exercise price was updated to be CA\$0.49. Also, as part of the Torchlight RTO, Torchlight outstanding warrants of 853,278 underwent a reverse stock split at a ratio of 2:1 resulting in warrants of 430,380 and for an amount being recorded at \$2,773,779 in additional paid in capital as part of the consideration transferred.

The following table summarizes the changes in warrants of the Company:

	Year ended December 31, 2021		Year ended December 31, 2020	
	Number of warrants ¹	Amount ¹	Number of warrants ¹	Amount ¹
Balance, beginning of year	3,046,730	\$ 402,883	1,590,866	\$ 132,299
Issued	2,153,500	3,831,124	1,455,864	166,916
Adjustment to 2019 warrants	—	—	—	103,668
Exercised	(365,651)	(49,812)	—	—
Fair value of deemed issuance to Torchlight	430,380	2,773,779	—	—
Balance, end of year	<u>5,264,959</u>	<u>\$ 6,957,974</u>	<u>3,046,730</u>	<u>\$ 402,883</u>

¹ All references to numbers of warrants have been retroactively restated to reflect as if Torchlight RTO had taken place as of the beginning of the earliest period presented. The numbers of warrants issued pre-CPM RTO have been divided by 2, multiplied by the 2.75 CPM conversion ratio and the 1.845 Torchlight conversion ratio. There were no warrants issued post CPM RTO except for Torchlight warrants.

During the year ended December 31, 2021, the Company granted 2,153,500 five-year warrants (year ended December 31, 2020 - 1,455,864) to purchase common stock to external consultants as stock-based compensation.

The fair value of 1,153,500 warrants issued during the year ended December 31, 2021 was estimated to be \$3,129,208 using the Black-Scholes option pricing model. The total amount has been recorded in General & Administrative expense in the consolidated statements of operations and comprehensive loss.

The fair value of 1,000,000 warrants issued during the year ended December 31, 2021 was estimated to be \$701,910 using the Monte Carlo Simulation model. The total amount has been recorded in General & Administrative expense in the consolidated statements of operations and comprehensive loss.

During the year ended December 31, 2021, 365,651 warrants were exercised to purchase 361,729 common shares where a warrant holder elected a cashless exercise and consequently, the difference of 3,922 shares was withheld to cover the exercise cost.

Broker warrants

Prior to completion of the CPM RTO on March 5, 2020, every MTI broker warrant had the right to purchase one MTI common share for CA\$1.70 per share.

Pursuant to the completion of the RTO on March 5, 2020, each MTI broker warrant was converted into 1.845 MMI warrants, and the exercise price was updated to be CA\$0.62.

On June 28, 2021, and pursuant to the completion of the Torchlight RTO, each MMI warrant was converted into 1.845 META warrants and the exercise price was updated to be CA\$0.34.

The following table summarizes the changes in broker warrants of the Company:

	Year ended December 31, 2021		Year ended December 31, 2020	
	Number of warrants ¹	Amount ¹	Number of warrants ¹	Amount ¹
Balance, beginning of year	97,542	\$ 16,144	—	\$ —
Issued	—	—	97,542	16,144
Exercised	(83,655)	(14,318)	—	—
Balance, end of year	13,887	\$ 1,826	97,542	\$ 16,144

¹ All references to numbers of broker warrants have been retroactively restated to reflect the number of stock of the legal parent (accounting acquiree) issuable following the reverse acquisition. The numbers of broker warrants issued pre-CPM RTO have been multiplied by the 2.75 CPM conversion ratio and the 1.845 Torchlight conversion ratio. There were no broker warrants issued post CPM RTO.

During the year ended December 31, 2021, 83,655 warrants were exercised to purchase 82,494 common shares where a warrant holder elected a cashless exercise and consequently, the difference of 1,161 shares was withheld to cover the exercise cost.

The fair value of warrants and broker warrants that were issued and estimated using the Black-Scholes option pricing model have the following inputs and assumptions:

	Year ended December 31, 2021	Year ended December 31, 2020
Risk free interest rate	0.45% - 0.98%	0.80% - 1.43%
Expected volatility	92%	134%
Expected dividend yield	0%	0%
Expected forfeiture rate	0%	0%
Common stock price	5.31	1.70
Exercise price per common stock	\$0.85 - \$4.50	\$1.70 - \$2.475
Expected term of warrants	2.20 - 5 years	2 years

The fair value of warrants that were issued and estimated using the Monte Carlo Simulation have the following inputs and assumptions:

	Year ended December 31, 2021
Risk free interest rate	0.42%
Weighted average expected volatility	80%
Expected term of warrants	5 years

15. Stock-based payments

On December 3, 2021, the shareholders of the Company approved the 2021 Equity Incentive Plan to utilize the 3,500,000 shares reserved and unissued under the Torchlight 2015 Stock Option and Grant Plan and the 6,445,745 shares reserved and unissued under the MMI 2018 Stock Option and Grant plan to set the number of shares reserved for issuance under the 2021 Equity Incentive Plan at 34,945,745 shares.

The 2021 Equity Incentive Plan allows the grants of non-statutory stock options, restricted stock, restricted stock units ("RSUs"), stock appreciation rights, performance units and performance shares to employees, directors, and consultants.

DSU Plan

Each unit is convertible at the option of the holder into one common share of the Company.

On March 28, 2013, the Company implemented a Deferred Stock Unit (DSU) Plan for its directors, employees and officers. Directors, employees and officers are granted DSUs of the Company with immediate vesting as a form of compensation. Each unit is convertible at the option of the holder into one common share of the Company. Eligible individuals are entitled to receive all DSUs (including dividends and other adjustments) no later than December 1st of the first calendar year commencing after the time of termination of their services.

On December 22, 2021, the Company granted 191,802 DSUs to directors of the Company with immediate vesting. The Company recognized an expense of \$517,869 in the consolidated statement of operations and comprehensive loss based on grant date fair value of \$2.70.

The following table summarizes the change in outstanding DSUs of the Company:

	Year ended December 31,	
	2021	2020
Outstanding, beginning of year	3,455,224	3,977,820
Issued	491,802	—
Converted into common stock	—	(522,596)
Outstanding, end of year	<u>3,947,026</u>	<u>3,455,224</u>

Information concerning units outstanding is as follows:

Issue price	As of December 31,	
	2021 Number of units	2020 Number of units
CA\$0.27	3,348,675	3,348,675
CA\$0.51	106,549	106,549
US\$2.70	491,802	—
	<u>3,947,026</u>	<u>3,455,224</u>

¹ All references to numbers of DSUs have been retroactively restated to reflect as if the Torchlight RTO had taken place as of the beginning of the earliest period presented. The numbers of DSUs issued pre-CPM RTO have been multiplied by the 2.75 CPM conversion ratio and the 1.845 Torchlight conversion ratio.

RSU Plan

Each unit is convertible at the option of the holder into one common share of the Company upon meeting the vesting conditions.

During the year ended December 31, 2021, the Company granted 300,000 RSUs to a consulting firm with vesting conditions satisfied in 2021. The Company recognized an expense of \$1,928,000 in the consolidated statement of operations and comprehensive loss based on weighted average grant date fair value of \$6.43/unit.

As of December 31, 2021, there was \$Nil unrecognized compensation cost related to unvested RSUs.

Employee Stock Option Plan

Each stock option is convertible at the option of the holder into one common share of the Company.

The Company has an Employee Stock Option Plan [the “Plan”] for directors, officers, and employees. Unless otherwise determined by the Board of Directors, 25% of the options shall vest and become exercisable on the first anniversary of the grant date and 75% of the options issuable under the Plan shall vest and become exercisable in equal monthly installments over the three-year period commencing immediately after the first anniversary of the grant date. The option exercise price will not be less than the fair market value of a share on the grant date, as determined by the Board of Directors, taking into account any considerations which it determines to be appropriate at the relevant time. The contractual term of the stock options is 10 years and there are no cash settlement alternatives for the employees.

During the year ended December 31, 2020, the Company’s existing MTI options were converted at a ratio of 2.75 MMI options for each MTI option pursuant to the CPM RTO. Also, as part of the CPM RTO, 1,291,500 stock options were issued to executives and directors of CPM. Additionally, and subsequent to the completion of the CPM RTO, the Company granted 13,402,080 options to employees and directors, 898,515 of which vested upon grant date and 12,503,565 of which vest over 1-4 years. Subsequent to the completion of the CPM RTO, 2,589,457 stock options were forfeited as a result of employee departures and 2,090,866 options expired unexercised.

During the year ended December 31, 2021, the Company’s existing MMI options were converted at a ratio of 1.845 META options for each MMI option pursuant to the Torchlight RTO. Also, as part of the Torchlight RTO, Torchlight outstanding options of 3,000,000 underwent a reverse stock split at a ratio of 2:1 resulting in outstanding options of 1,500,000 and an amount of \$9,397,988 was recorded in additional paid in capital as part of the consideration transferred.

Total stock-based compensation expense included in the consolidated statements of operations was as follows:

	Year ended December 31,		
	2021	2020	2019
Selling & Marketing	\$ 34,735	\$ 61,560	\$ 154,086
General & Administrative	544,530	1,114,556	940,613
Research & Development	479,715	333,570	198,073
	<u>\$ 1,058,980</u>	<u>\$ 1,509,686</u>	<u>\$ 1,292,772</u>

The following table summarizes the change in outstanding stock options of the Company:

	Number of options	Average exercise price per stock option	Average exercise remaining contractual term (years)	Aggregate intrinsic value
Outstanding, December 31, 2019	14,502,303	\$ 0.33	8.38	\$ 104,500
Issued to CPM executives and directors pursuant to CPM RTO	1,291,500	0.19		
Granted	13,402,080	0.34		
Forfeited	(2,627,510)	0.34		
Expired	(2,090,866)	0.27		
Outstanding, December 31, 2020	24,477,507	\$ 0.33	8.36	\$ 688,952
Exercised	(4,486,965)	0.36		
Forfeited	(85,901)	0.34		
Fair value of deemed issuance to Torchlight	1,500,000	2.22		
Outstanding, December 31, 2021	21,404,641	\$ 0.46	7.34	\$ 56,924,556
Exercisable, December 31, 2021	13,231,030	\$ 0.54	6.74	\$ 34,148,435

Below is a summary of the outstanding options as at December 31, 2021:

Exercise price \$	Number outstanding	Number exercisable
CA\$0.34	19,067,529	10,893,918
CA\$0.15	518,112	518,112
CA\$0.19	369,000	369,000
US\$2.00	1,075,000	1,125,000
US\$1.00	375,000	325,000
	21,404,641	13,231,030

Below is a summary of the outstanding options as at December 31, 2020:

Exercise price	Number outstanding	Number exercisable
CA\$0.34	23,550,394	9,636,758
CA\$0.15	558,113	558,113
CA\$0.19	369,000	369,000
	24,477,507	10,563,871

¹ All references to numbers of stock options have been retroactively restated to reflect as if the Torchlight RTO had taken place as of the beginning of the earliest period presented. The numbers of stock options issued pre-CPM RTO have been multiplied by the 2.75 CPM conversion ratio and the 1.845 Torchlight conversion ratio. The numbers of stock options issued post CPM RTO have been multiplied by the 1.845 Torchlight conversion ratio.

The weighted average remaining contractual life for the stock options outstanding as at December 31, 2021 was 7.65 (December 31, 2020 – 8.36) years. There were 1,500,000 and 13,402,080 stock options granted with a weighted-average grant date fair value of \$6.27 and \$0.39 per share respectively during the year ended December 31, 2021 and the year ended December 31, 2020.

The fair value of options granted was estimated at the grant date using the following weighted-average assumptions:

	Year ended December 31,		
	2021	2020	2019
Dividend yield [%]	—	—	—
Volatility	84%	52%-134%	84%-130%
Risk-free interest rate	0.73%	0.73%	1.21%
Expected term (in years)	1 year	7.48 years	8.67 years

The expected life of the stock options is based on historical data and current expectations and is not necessarily indicative of exercise patterns that may occur. The expected volatility reflects the assumption that the historical volatility over a period similar to the life of the options is indicative of future trends, which may not necessarily be the actual outcome.

16. Income taxes

Loss before income taxes was as follows:

	Year ended December 31,		
	2021	2020	2019
Local	\$ (30,552,839)	\$ (1,549,534)	\$ (1,278,498)
Foreign	(61,296,485)	(10,255,435)	(7,250,018)
Loss before income taxes	<u>\$ (91,849,324)</u>	<u>\$ (11,804,969)</u>	<u>\$ (8,528,516)</u>

Income tax provision was as follows:

	Year ended December 31,		
	2021	2020	2019
<u>Current tax expense:</u>			
Local	\$ 800	\$ 800	\$ 800
Foreign	—	—	—
Current tax expense	<u>800</u>	<u>800</u>	<u>800</u>
<u>Deferred tax benefit:</u>			
Local	—	—	—
Foreign	(852,863)	(194,510)	(84,349)
Deferred tax benefit	<u>(852,863)</u>	<u>(194,510)</u>	<u>(84,349)</u>
Income tax recovery	<u>\$ (852,063)</u>	<u>\$ (193,710)</u>	<u>\$ (83,549)</u>

The income tax provision differs from the amount computed by applying the federal income tax rate of 21% for 2021 (2020 - 21%) to the loss before income taxes as a result of the following differences:

	Year ended December 31,		
	2021	2020	2019
Tax computed at federal statutory rate	\$ (19,288,357)	\$ (2,479,044)	\$ (1,790,988)
State income taxes, net of federal benefit	(1,075,114)	(136,979)	(113,019)
Share-based compensation	2,289,214	317,034	285,287
Unrealized loss on FVTPL liabilities	11,752,697	—	—
Other permanent items	(114,799)	104,181	145,204
Foreign currency and other	929,664	343,574	159,409
Impact of different tax rate in foreign jurisdiction	(4,889,797)	(787,329)	(644,394)
Change in valuation allowance	9,544,429	2,444,853	1,874,952
Income tax recovery	<u>\$ (852,063)</u>	<u>\$ (193,710)</u>	<u>\$ (83,549)</u>

The tax effects of temporary differences that give rise to significant portions of the deferred tax assets and deferred tax liabilities are as follows:

	As of December 31,	
	2021	2020
Deferred tax assets		
Non-capital losses	\$ 25,110,497	\$ 10,059,528
Intangible assets	69,964	62,938
Other assets	46,725	42,488
Research and development tax credits	1,972,694	—
Total gross deferred tax assets	27,199,880	10,164,954
Less: valuation allowance	(18,659,901)	(9,115,472)
	8,539,979	1,049,482
Deferred tax liabilities		
Intangible assets	(6,276,390)	(703,872)
Property and equipment	(2,226,741)	(281,092)
Long-term debt	(251,646)	(293,168)
Funding obligation	(109,681)	(35,404)
Unsecured convertible promissory notes	—	(54,000)
	(8,864,458)	(1,367,536)
Net deferred tax liability	\$ (324,479)	\$ (318,054)

At December 31, 2021, the Company has net operating loss carryforwards (“NOLs”) of approximately \$91.3 million (2020: \$34.7 million) that can be used to offset future taxable income, and such NOLs, as well as timing differences from certain financial instruments, result in a gross deferred tax asset of approximately \$27.2 million (2020: \$10.2 million). These NOLs begin to expire in 2028.

In evaluating its valuation allowance, the Company considers all available positive and negative evidence, including projected future taxable income and recent financial performance. Due to uncertainty with respect to the ultimate realizability of these deferred tax assets, the Company has recorded a valuation allowance of approximately \$18.7 million (2020: \$9.1 million) against its deferred tax assets.

17. Net loss per share

The following table sets forth the calculation of basic and diluted net loss per share during the periods presented:

	Year ended December 31,		
	2021	2020	2019
Numerator:			
Net loss	\$ (90,997,261)	\$ (11,611,259)	\$ (8,444,967)
Denominator:			
Weighted-average shares, basic	232,898,398	137,258,259	50,015,137
Weighted-average shares, diluted	232,898,398	137,258,259	50,015,137
Net loss per share			
Basic	(0.39)	(0.08)	(0.17)
Diluted	(0.39)	(0.08)	(0.17)

The following potentially dilutive shares were not included in the calculation of diluted shares above as the effect would have been anti-dilutive:

	2021	As of December 31, 2020	2019
Convertible debt	—	10,423,477	9,957,387
Options	21,404,641	24,477,507	7,860,328
Warrants	5,278,846	3,144,272	862,258
DSUs	3,947,026	3,947,026	1,872,750
	<u>30,630,513</u>	<u>41,992,282</u>	<u>20,552,723</u>

18. Additional cash flow information

The net changes in operating assets and liabilities consist of the following:

	2021	As of December 31, 2020	2019
Grants receivable	\$ 149,798	\$ (131,318)	\$ 16,243
Inventory	325,657	(109,986)	(17,495)
Accounts and other receivables	(880,613)	58,891	(95,244)
Prepaid expenses and other current assets	(2,100,371)	(27,313)	(124,555)
Trade payables	6,906,376	(644,120)	998,335
Due to related party	(78,940)	(26,984)	2,943
Operating lease Right-of-use Asset	1,018,691	—	—
Operating lease liabilities	(688,183)	—	—
	<u>\$ 4,652,415</u>	<u>\$ (880,830)</u>	<u>\$ 780,227</u>

19. Fair value measurements

The Company uses a fair value hierarchy, based on the relative objectivity of inputs used to measure fair value, with Level 1 representing inputs with the highest level of objectivity and Level 3 representing the lowest level of objectivity.

The fair values of cash and cash equivalents, restricted cash, short-term investments, grants and accounts receivables, due from (to) related parties and trade and other payables approximate their carrying values due to the short-term nature of these instruments. The current portion of long-term debt has been included in the below table.

The fair values of convertible promissory notes secured convertible debentures and unsecured convertible debentures are classified at level 3 as they were accounted for under the fair value option election of ASC 825 and the estimated fair value was computed using significant inputs that are not observable in the market.

The fair value of assets held for sale is classified at level 3 as the fair value of the O&G assets was estimated by obtaining a valuation study performed by a third party valuation firm. Refer to note 3 for the significant estimates and assumptions used by the Company in the determination of the fair value.

The fair value of the preferred stock liability is also classified as level 3 since the fair value measurement of the oil and natural gas properties forms the basis for the fair value measurement of the preferred stock liability as of June 28, 2021 and as of December 31, 2021.

The fair values of the funding obligation, operating lease liabilities, and long-term debt would be classified at Level 3 in the fair value hierarchy, as each instrument is estimated based on unobservable inputs including discounted cash flows using the market rate, which is subject to similar risks and maturities with comparable financial instruments as at the reporting date.

Carrying values and fair values of financial instruments that are not carried at fair value are as follows:

Financial liability	2021		2020	
	Carrying value	Fair value	Carrying value	Fair value
Funding obligation	\$ 268,976	\$ 170,338	\$ 776,884	\$ 571,839
Operating lease liabilities	4,370,635	6,149,369	270,581	270,641
Long-term debt	3,228,449	2,303,648	3,034,048	2,734,931

20. Revenue

The Company has one operating segment based on how management internally evaluates separate financial information, business activities and management responsibility.

Revenue is disaggregated as follows:

	Year ended December 31,		
	2021	2020	2019
Product sales	\$ 407,914	\$ 2,905	\$ 23,745
Contract revenue [1]	3,427,938	624,316	247,669
Other development revenue	246,665	494,962	630,996
Development revenue	3,674,603	1,119,278	878,665
	\$ 4,082,517	\$ 1,122,183	\$ 902,410

¹ Contract revenue represents previously recorded deferred revenue that was recognized as revenue after satisfaction of performance obligations either through passage of time or after completion of specific performance milestones. Refer to note 21 for outstanding contracts.

Customer concentration

A significant amount of the revenue is derived from contracts with major customers. For the year ended December 31, 2021, the Company had 3 customers that accounted for \$3,307,914 or 81% of total revenue. For the year ended December 31, 2020, the Company had 3 customers that accounted for \$807,912 or 72% of total revenue.

Nanotech currently derives a significant portion of its revenue from contract services with a G10 central bank. In 2021, Nanotech entered into a development contract for up to \$41.5 million over a period of up to five years. These contract services incorporate both nano-optic and optical thin film technologies and are focused on developing authentication features for future banknotes. During the year ended December 31, 2021, revenue recognized from this development contract represented 45% of the Company's total revenue.

Cooperation Framework Agreement

During the year ended December 31, 2020, the Company entered into a Cooperation Framework Agreement ("CFA") with Covestro Deutschland AG ("Covestro") where Covestro is obligated to provide EUR 800,000 (US\$987,577) of proceeds to the Company in exchange for a license to the Interglass patents and upon the completion of certain performance milestones. The Company has also entered into an agreement with Canton Zug in Switzerland for the acquisition of specialized lens casting production equipment and intellectual property ("Interglass assets") for US\$800,000.

During the year ended December 31, 2021, and pursuant to receiving the required funds from Covestro, the Company acquired and recognized the Interglass assets in property, plant and equipment in the amount of \$320,000 and intangibles in the amount of \$480,000. The Company identified the performance obligations associated with the agreement as per ASC 606 *Revenue Recognition* and recognized the full amount of the contract as development revenue in the consolidated statement of operations and comprehensive loss.

21. Deferred revenue

Deferred revenue consists of the following:

	As of December 31,	
	2021	2020
Satair A/S-exclusive rights [1]	717,615	815,310
Satair A/S-advance against PO [2]	490,929	488,847
LM Aero-MetaSOLAR commercialization [3]	92,698	646,135
Breakthrough Starshot Foundation [4]	75,000	75,000
Innovate UK-R&D tax credit	18,588	18,778
Other deferred revenue	21,910	—
	<u>1,416,740</u>	<u>2,044,070</u>
Less current portion	779,732	1,239,927
	<u>\$ 637,008</u>	<u>\$ 804,143</u>

[1] On September 18, 2018, the Company signed an exclusive distribution agreement with Satair A/S for a term of 10 years. According to this agreement, the Company grants Satair A/S the exclusive right to sell, market, and distribute eyewear and visor products incorporating metamaterial-based laser protection technology that are developed or manufactured by the Company for use in aviation, military and defense. On September 13, 2018, the Company received a fee of \$1,000,000 for the exclusive distribution rights granted under this agreement and the payment was recognized as deferred revenue on the consolidated balance sheets. It will be accounted as development revenue over a period of 8 years and no repayment of the \$1,000,000 is required if the contract termination is after the 8th anniversary of the effective date. During the year ended December 31, 2021, the Company has recognized \$102,269 (2019: \$98,292) as development revenue related to this agreement.

[2] On July 20, 2018, the Company received a purchase order for MetaVisor (eyewear/eye protection) from Satair A/S for \$2,000,000. On November 7, 2018, the Company received a partial advance payment of \$500,000 against this purchase order. The Company has set up a guarantee/standby letter of credit with RBC. In the event the Company fails to deliver the product as per the contract or refuse to accept the return of the product as per the buyback clause of the contract or fails to repay the advance payment in accordance with the conditions of the agreement signed with Satair on September 18, 2018, Satair shall draw from the letter of credit with RBC. As at December 31, 2021, no amount has been drawn from the letter of credit with RBC. Refer to note 28 for information regarding the letter of credit.

[3] On April 26, 2017, the Company received \$4,150,000 from Lockheed Martin Aeronautics Corporation ("LM Aero") in relation to the Offset Project Agreement ("OPA"). The purpose of the OPA was to document the agreement between LM Aero and the Company with respect to the Company's planned growth through R&D and commercialization activities using the MetaSOLAR technology as well as the contribution that LM Aero made to the Company in return for the Company's effective assistance in obtaining credit

arising from the project as set forth in the OPA. The Company has set up an irrevocable standby letter of credit with RBC. In the event the Company fails to meet the obligations under the OPA, LM Aero shall draw from the letter of credit with RBC. The performance obligations for the milestone are satisfied through-out the period. During the year ended December 31, 2021, the Company has recognized \$562,531 (2020: \$526,109) as development revenue related to this agreement.

[4] On March 1, 2020, the Company entered into a research agreement with Breakthrough Starshot Foundation LLC under the project "Lightsail" for \$150,000. The Company received \$75,000 on March 6, 2020 which has been recorded as part of deferred revenue.

22. Deferred government assistance

a) Grants receivable

	As of December 31,	
	2021	2020
ACOA-PBS [1]	\$ 8,069	\$ 11,960
Co-Op wage subsidy [2]	7,318	31,400
Canada Emergency Wage Subsidy [3]	122,940	233,446
Innovate UK – Diabet [4]	13,790	51,062
NSBI - Export development program [5]	23,663	—
	<u>\$ 175,780</u>	<u>\$ 327,868</u>

- [1] On November 21, 2018, ACOA approved two non-repayable contribution of \$37,679 each to the Company under Business Development Program – Productivity and Business skills (“PBS”) for the cost to create product and commercialization strategies.
- [2] During 2021 and 2020, the Company applied for and received grants related to co-op students and recent graduates under the Nova Scotia Co-Op Subsidy, Graduate To Opportunity Program (“GTO”) and Venture for Canada program (“VFC”).
- [3] During 2021, the Company received the 2020 outstanding balance of \$233,446 as well as recognized \$443,494 government assistance from Canada Emergency Wage subsidy (“CEWS”) as other income in the consolidated statements of operations and comprehensive loss, of which \$321,547 has been received.
- [4] On February 13, 2019, Innovate UK approved a grant to MediWise for the project “Diabet – Innovate wrist device for high accuracy non-invasive blood glucose monitoring”. During 2021, the Company received \$132,288 (2020: \$139,940) in relation to the grant and recognized government assistance of \$110,125 (2020: \$130,734) as other income in the consolidated statements of operations and comprehensive loss.
- [5] On December 15, 2021, the Company applied for NSBI - Export development program and recognized \$23,663 as other income in the consolidated statements of operations and comprehensive loss.

b) Deferred government assistance

	As of December 31,	
	2021	2020
SDTC [1]	\$ 846,612	\$ 779,579
Deferred government assistance	3,038	31,400
	<u>849,650</u>	<u>810,979</u>
Less: current portion	<u>846,612</u>	<u>779,578</u>
	<u>\$ 1,696,262</u>	<u>\$ 1,590,557</u>

[1] On May 15, 2018, the Company entered into an agreement with the Canada Foundation for Sustainable Development Technology Canada (“SDTC”) for \$4,189,966. The contribution provides funding for eligible costs incurred relating to the further development and demonstration of technology related to solar cells in connection with the project entitled “Enabling solar flight a testing ground for lightweight and efficient solar panels”. On March 30, 2021, the Company has received an additional 5% contribution from SDTC of \$223,409 (2020: \$211,868). The Company has recognized \$161,990 (2020: \$639,505) as government assistance in the consolidated statements of operations and comprehensive loss.

c) Government assistance recognized in the consolidated statements of operations and comprehensive loss

	Year ended December 31,		
	2021	2020	2019
SDTC	\$ 161,990	\$ 639,505	\$ 192,574
Payroll subsidies	741,322	831,148	690,434
Amortization of deferred government assistance	145,739	135,654	135,125
Fair value gain on initial recognition of ACOA loans	236,021	—	172,352
Scientific Research and Experimental Development ("SR&ED")	448,894	—	—
Other grants	—	23,807	41,290
	<u>\$ 1,733,966</u>	<u>\$ 1,630,114</u>	<u>\$ 1,231,775</u>

23. Interest expense, net

	Year ended December 31,		
	2021	2020	2019
Non-cash interest accretion	\$ (904,925)	\$ (1,052,478)	\$ (742,360)
Interest & bank charges	(220,460)	(394,330)	(394,147)
Interest income	18,940	16,854	585
	<u>\$ (1,106,445)</u>	<u>\$ (1,429,954)</u>	<u>\$ (1,135,922)</u>

24. Loss on financial instruments, net

	Year ended December 31,		
	2021	2020	2019
Loss on secured convertible promissory notes	\$ —	\$ (5,234)	\$ (280,319)
Loss on unsecured convertible promissory notes – Bridge loan	(19,163,417)	(139,610)	—
(Loss) Gain on unsecured convertible promissory notes – Torchlight notes	(343,197)	354,840	—
Loss on secured convertible debentures	(16,957,029)	(865,280)	—
Loss on unsecured convertible debentures	(4,076,448)	(189,709)	—
	<u>\$ (40,540,091)</u>	<u>\$ (844,993)</u>	<u>\$ (280,319)</u>

The net gain/loss on financial instruments for the years ending December 31, 2021 and December 31, 2020 represent non-cash gains/losses resulting from remeasurement of the fair value of convertible financial liabilities at each balance sheet date or on conversion date using the fair value option.

Each of the above referenced promissory notes and debentures included a conversion feature, exercisable at the option of the debt holder. For accounting purposes, each of these conversion features is an embedded derivative in the note or debenture. The Company elected to account for fluctuations in (a) the value of the liabilities driven by interest rate volatility and the Company's credit risk and (b) the embedded derivatives driven by fluctuations in the Company's common stock share price using a method known as Fair Value option. This accounting method calls for the Company to measure the fair value of the convertible financial liabilities at each balance sheet date and to record any fluctuations in the

values that as non-cash adjustments relating to instrument specific credit risk in the other comprehensive income and non-cash adjustments relating to other factors in the statements of operations. If, as in the case of the liabilities described above, the debt is converted, the valuations and any adjustments are to be recorded as of the date of such conversion.

The Fair Value option also provides that the total revaluation adjustment be recorded in Common Stock and additional paid in capital thus having no impact on stockholders' equity despite the recording of the loss in the statement of operations.

25. Other (loss) income, net

	Year ended December 31,		
	2021	2020	2019
O&G assets maintenance cost [1]	\$ (14,155,851)	\$ —	\$ —
Government Assistance (note 22)	1,733,966	1,630,114	1,231,775
Other income	8,850	—	401,186
Fair value gain (loss) on long-term debt	2,278	(106,635)	448,437
Fair value gain (loss) on funding obligation (note 26)	471,689	(32,291)	—
	<u>\$ (11,939,068)</u>	<u>\$ 1,491,188</u>	<u>\$ 2,081,398</u>

[1] The Company incurred costs of \$14.2 million in relation to certain drilling activity carried out at its Oil and Gas properties, to remain in compliance with all aspects of the Company's lease obligations and to satisfy the Continuous Drilling Clause ("CDC") with University Lands.

26. Funding obligation

	As of December 31,	
	2021	2020
Outstanding obligation [1]	\$ 1,025,398	\$ 1,021,050
Fair value of interest-free component [2]	(855,060)	(384,056)
Principal adjusted for interest-free component	170,338	636,994
Accumulated non-cash interest accretion	98,638	139,890
Carrying amount	268,976	776,884
Less current portion	—	—
	<u>\$ 268,976</u>	<u>\$ 776,884</u>

[1] In June 2019, the Company entered into a statement of work ("SOW") with a third party for the purchase of manufacturing equipment. The SOW was initiated based on the Industrial and Regional Benefits general investment funding between the third party and the Government of Canada. The Company received the funds in two tranches after achieving two milestones as per the SOW. The funds are repayable, commencing three years from date of receipt, based on 10% of revenue from the sale of holographic film that is produced using the related manufacturing equipment paid for under this funding obligation.

In June 2019, the Company achieved the first milestone and received CA\$325,000 and in October 2019, the Company achieved the second milestone and received CA\$975,000. The Company has not sold holographic film related to this SOW to date.

[2] The amounts received under the agreement have been recorded at fair value by applying the effective interest rate method on the dates the funding was received, using an estimated market interest rate of 15%. Accordingly, during the year ended December 31, 2019, the Company recognized \$401,186 as other income in the consolidated statements of operations and comprehensive loss. In the year ended 2020, the Company recognized a loss of \$32,291 resulting from changes in repayment period of the obligation. The gain was recorded in the consolidated statements of operations and comprehensive loss. During the year ended December 31, 2021, the Company elected to bring the market interest rate to current rates and increased it to 19.17%. Following management discussions the revenue generation ability from the manufacturing equipment bought under the funding obligation was reduced, resulting in a longer repayment period. The combination of these two changes prompted the Company to recognize a gain of \$471,004 for the year ended December 31, 2021 in the consolidated statements of operations and comprehensive loss.

27. Leases

The Company entered into the following leases during the years ended December 31, 2021 and 2020 respectively outlined below:

Nova Scotia, Canada

On January 1, 2013, MMI signed an initial lease with a lessor in Dartmouth, Nova Scotia, commencing in 2013. The most recent amendment was signed on July 1, 2020 for a month to month lease for an 8,792 square foot facility, which currently hosts the Company's holography and lithography R&D labs and manufacturing operations.

On August 31, 2020, MMI signed a ten-year lease with a lessor in Nova Scotia, Canada, commencing January 1, 2021, for an approximately 53,000 square foot facility, which will host the Company's holography and lithography R&D labs and manufacturing operations. Commencing in September 2021, the Company was to pay monthly basic rent of CA\$28,708 and additional rent for its proportionate share of operating costs and property taxes of CA\$24,910 per month, subject to periodic adjustments. In conjunction with signing the lease, the Company entered into a loan agreement with the lessor in the amount of CA\$500,000 to fund leasehold improvements.

The Company has accounted for the lease as an operating lease and recorded a right-of-use ("ROU") asset in the amount of \$1,021,499. The ROU asset is being amortized over the remaining lease term in an amount equal to the difference between the calculated straight-line expense of the total lease payments less the monthly interest calculated on the remaining lease liability.

On June 9, 2021, MMI signed a lease amendment with the landlord to expand the leased space of the facility by approximately 15,000 square feet, reduce the annual rent for the 10-year term of the lease and obtain from the landlord CA\$500,000 in cash to fund ongoing tenant improvements. In exchange, the landlord received 993,490 MMI common shares valued at CA\$3.40 per share.

The lease amendment was accounted for as a lease modification. As such, the operating lease liability was remeasured, and the difference was recorded in ROU assets.

California, United States

On June 3, 2021, MMI signed a lease amendment with its lessor in Pleasanton, California to expand the leased space of the facility in the United States to include additional office space of 5,475 square feet, commencing from June 2021. Alongside this lease amendment, the durations of all of the leased spaces were also extended until August 31, 2024. The lease amendment was accounted for as a lease modification. As such, the operating lease liability was remeasured, and the difference was recorded in ROU assets. These amendments required the Company to derecognize the existing right-of-use asset and operating lease liability and recognize a new right-of-use asset and an operating lease liability commencing June 2021.

On September 16, 2021, the Company signed an agreement to extend the lease term of its existing leased premises at Pleasanton, California, from September 1, 2024 to September 30, 2026. In addition, the Company also signed an agreement to lease an additional 8,904 square feet at the same property to have a total leased area at Pleasanton of 19,506 square

feet. The new lease commenced on October 1, 2021 and has the same expiry date as above. The lease amendment was accounted for as a lease modification. As such, the operating lease liability was remeasured, and the difference was recorded in ROU assets as of December 31, 2021.

Massachusetts, United States

On September 17, 2021, the Company entered into an lease agreement with Boxer Property Management Corp. to lease a space of 4,414 square feet at 85 Swanson Road, Boxborough, MA with a term of two years commencing October 1, 2021. The Company recognized a ROU asset and an operating lease liability of \$132,780 for this lease.

Athens, Greece

On November 1, 2021, the Company entered into a lease agreement with Special Purpose AP10 S.A. Real Estate Company, to lease a space of 1,436 square meters (15,457 square feet) in Athens, Greece, with a term of 10 years commencing on November 1, 2021. The Company recognized a ROU asset and an operating lease liability of \$1,019,795 (EUR 898,419) as of November 1, 2021. The Company secured a rent-free period of 9 months commencing the date of lease commencement, and also prepaid two months amounting to \$35,188 (EURO 31,000).

British Columbia, Canada

As part of the Nanotech acquisition (note 3) the Company acquired Nanotech's lease obligations, including a space of 7,860 square feet in British Columbia, Canada with a remaining lease term of 3 years and 7 months, ending on April 30, 2025. The Company recognized a ROU asset and an operating lease liability of \$607,354 for this lease.

London, United Kingdom

In October 2020, the Company renewed its lease agreement to lease a space of 742 square feet in London, United Kingdom with a term of two years commencing on October 20, 2020. The Company recognized a ROU asset and an operating lease liability of \$62,543 (GBP 46,284) at initial recognition.

Steinhausen, Switzerland

The Company entered into a lease agreement with a lessor to lease a space of 1,335 square feet at Steinhausen, Switzerland with a term of one year and four months commencing on March 1, 2021. The Company recognized a ROU asset and an operating lease liability of \$25,009 (CHF 22,815) as of March 1, 2021. The monthly rent was reduced from \$1,756 (CHF 1,602) to \$ 1,019 (CHF 930) in August 2021 as per the terms of the agreement.

Total operating lease expense included in the consolidated statements of operations and comprehensive loss is as follows:

	Year ended December 31,		
	2021	2020	2019
Operating lease expense	\$ 546,197	\$ 224,210	\$ 201,242
Short term lease expense	229,475	104,470	126,421
Variable and other lease expense	92,862	40,006	31,408
Total	<u>868,534</u>	<u>368,686</u>	<u>359,071</u>

The Company completed its evaluation of the provisions of ASC 842 "Leases" and elected the practical expedient to not capitalize any leases with initial terms of less than twelve months on its balance sheet and include them as short term lease expense in the consolidated statements of operations.

Future minimum payments under non-cancelable operating lease obligations were as follows as of December 31, 2021:

2022	1,028,314
2023	1,176,935
2024	1,180,745
2025	1,098,049
Thereafter	3,965,777
Total minimum lease payments	8,449,820
Less: interest	(4,079,185)
Present value of net minimum lease payments	4,370,635
Less: current portion of lease liabilities	(663,861)
Total long-term lease liabilities	\$ 3,706,774

Supplemental balance sheet information related to leases is as follows:

	Year ended December 31,	
	2021	2020
Weighted Average Remaining Lease Term	5 years	2 years
Weighted Average Discount Rate	17.85 %	15 %

28. Commitments and contingencies

Legal Matters

On January 31, 2020, Torchlight Energy Resources, Inc. and its wholly owned subsidiaries Torchlight Energy, Inc. and Torchlight Energy Operating, LLC were served with a lawsuit brought by Goldstone Holding Company, LLC (Goldstone Holding Company, LLC v. Torchlight Energy, Inc., et al., in the 160th Judicial District Court of Dallas County, Texas). On February 24, 2020, Torchlight Energy Resources, Inc., Torchlight Energy, Inc., and Torchlight Energy Operating, LLC timely filed their answer, affirmative defenses, and requests for disclosure. The suit, which sought monetary relief over \$1 million, made unspecified allegations of misrepresentations involving a November 2015 participation agreement and a 2016 amendment to the participation agreement. Torchlight denied the allegations and asserted several affirmative defenses including but not limited to, that the suit is barred by the applicable statute of limitations, that the claims had been released, and that the claims were barred because of contractual disclaimers between sophisticated note parties. Torchlight also asserted counterclaims for attorney fees. On January 14, 2021, Goldstone Holding Company, LLC dismissed its claims without prejudice, leaving Torchlight's counterclaims for attorney fees as the only pending claim in the case. On February 26, 2021, Torchlight filed a non-suit without prejudice on its counterclaims for attorney fees, leaving no claims in the case. The court signed a final order disposing of the entire case on March 5, 2021. However, Goldstone Holding Company, LLC asked the court to re-instate its claims, and a hearing was held on April 13, 2021. On June 16, 2021, the court signed an order denying the motion to reinstate Goldstone Holding Company's, LLC's claims, and the case is closed.

On April 30, 2020, The Company's wholly owned subsidiary, Hudspeth Oil Corporation, filed suit against Datalog LWT, Inc. d/b/a Cordax Evaluation Technologies. The suit seeks the recovery of approximately \$1.4 million in costs incurred as a result of a tool failure during drilling activities on the University Founders A25 #2 well that is located in the

Orogrande Field. Working interest owner Wolfbone Investments, LLC, a company owned by the Company's former Chairman Gregory McCabe, is a co-plaintiff in that action. After the suit was filed, Cordax filed a mineral lien in the amount of \$104,500 against the Orogrande Field and has sued the operator and counterclaimed against Hudspeth for breach of contract, seeking the same amount as the lien. The Company has added the manufacturer of one of the tool components that the Company contends was a cause of the tool failure. It was later discovered that Datalog LWT, Inc. d/b/a Cote rdax Evaluation Technologies forfeited its charter to conduct business in the State of Texas by failing to timely pay its franchise taxes, and the Company added members of the board of directors to the case pursuant to the Texas Tax Code. It was recently disclosed that Datalog LWT, Inc. d/b/a Cordax Evaluation Technologies is the subsidiary of a Canadian parent company, Cordax Evaluation Technologies, Inc., who has also been added to the case. The suit, Hudspeth Oil Corporation and Wolfbone Investments, LLC v. Datalog LWT, Inc. d/b/a Cordax Evaluation Technologies, was filed in the 189th Judicial District Court of Harris County, Texas. The Company's current Chairman of the Board filed a special appearance after being served with citation, alleging that he was a Canadian citizen with no meaningful ties to Texas. After discovery was conducted on this issue, the Company filed a nonsuit without prejudice for this Defendant, dismissing him from the case. The remaining parties are currently engaged in preliminary discovery and are scheduling mediation.

On March 18, 2021, Datalog LWT, Inc. d/b/a Cordax Evaluation Technologies filed a lawsuit in Hudspeth County, Texas seeking to foreclose its mineral lien against the Orogrande Field in the amount of \$104,500.01 and recover related attorney's fees. The foreclosure action, Datalog LWT Inc. d/b/a Cordax Evaluation Technologies v. Torchlight Energy Resources, Inc., was filed in the 205th Judicial District Court of Hudspeth County, Texas. The Company is contesting the lien in good faith and filed a Plea in Abatement on May 10, 2021, seeking a stay in the Hudspeth County lien foreclosure case pending final disposition of the related case currently pending in Harris County, Texas.

In September 2021, the Company received a subpoena from the Securities and Exchange Commission, Division of Enforcement, in a matter captioned *In the Matter of Torchlight Energy Resources, Inc.* The subpoena requests that the Company produces certain documents and information related to, among other things, the merger involving Torchlight Energy Resources, Inc. and Metamaterial Inc. The Company is cooperating and intends to continue to cooperate with the SEC's investigation. The Company can offer no assurances as to the outcome of this investigation or its potential effect, if any, on the Company or its results of operation.

On January 3, 2022, a putative securities class action lawsuit was filed in the U.S. District Court for the Eastern District of New York captioned *Maltagliati v. Meta Materials Inc., et al.*, No. 1:21-cv-07203, against the Company, its Chief Executive Officer, its Chief Financial Officer, Torchlight's former Chairman of the Board of Directors, and Torchlight's former Chief Executive Officer. The complaint, purportedly brought on behalf of all purchasers of the Company's publicly traded securities from September 21, 2020 through and including December 14, 2021, asserts claims under Sections 10(b) and 20(a) of the Securities Exchange Act of 1934 (the "Exchange Act") arising primarily from a short-seller report and statements related to the Company's business combination with Torchlight. The complaint seeks unspecified compensatory damages and reasonable costs and expenses, including attorneys' fees.

On January 26, 2022, a similar putative securities class action lawsuit was filed in the U.S. District Court for the Eastern District of New York captioned *McMillan v. Meta Materials Inc., et al.*, No. 1:22-cv-00463. This complaint names the same defendants and asserts the same claims on behalf of the same purported class as the Maltagliati action. The Company believes these actions (collectively, the "Securities Class Action") have no merit and intends to vigorously defend itself against these allegations.

On January 14, 2022, a shareholder derivative action was filed in the U.S. District Court for the Easter District of New York captioned *Hines v. Palikaras, et al.*, No. 1:22-cv-00248. The complaint names as defendants certain of the Company's current officers and directors, certain former Torchlight officers and directors, and the Company (as nominal defendant). The complaint, purportedly brought on behalf of the Company, asserts claims under Section 14(a) of the Exchange Act, contribution claims under Sections 10(b) and 21D of the Exchange Act, and various state law claims such as breach of fiduciary duties and unjust enrichment. The complaint seeks, among other things, unspecified compensatory damages in favor of the Company, certain corporate governance related actions, and an award of costs and expenses to the derivative plaintiff, including attorneys' fees.

Contractual Commitments and Purchase Obligations

- a) As highlighted in note 20, on January 29, 2021, the Company arranged an irrevocable standby letter of credit with TD in favor of Covestro for EUR 600,000 in relation to the CFA agreement. In the event the Company fails to meet the performance milestones under the CFA, Covestro shall draw from the letter of credit with TD. The letter of credit

was secured by restricted cash of CA\$1,000,000 under a cash use agreement which has been recorded as long-term debt in the consolidated balance sheets. In July 2021, the Company settled the long term debt and used its own funds as guarantee. Covestro has issued certificates of reduction of \$462,563 (ER 300,000) to reduce the letter of credit after completion of certain performance milestones. This will take effect in Fiscal 2022. As at December 31, 2021, the letter of credit has an outstanding amount of EUR 600,000.

- b) During 2018, the Company arranged a guarantee/standby letter of credit with RBC in favor of Satair A/S for \$500,000 in relation to an advance payment received. In the event the Company fails to deliver the product as per the contract or refuse to accept the return of the product as per the buyback clause of the contract or fails to repay the advance payment in accordance with the conditions of the agreement signed with Satair on September 18, 2018, Satair shall draw from the letter of credit with RBC. Borrowings from the letter of credit with RBC are repayable on demand. The letter of credit from RBC is secured by a performance security guarantee cover issued by Export Development of Canada. Further, this guarantee/standby letter of credit expires on October 5, 2022. As at December 31, 2021, no amount has been drawn from the letter of credit with RBC.
- c) On December 8, 2016, the Company entered into a cooperation agreement with a large aircraft manufacturer to co-develop laser protection filters for space and aeronautical civil and military applications, metaAIR, and support the setup of manufacturing facilities for product certification and development. The cooperation agreement includes financial support provided to the Company in the form of non-recurring engineering costs of up to \$4,000,000 to be released upon agreement of technical milestones in exchange for a royalty fee due by the Company on gross profit after sales and distribution costs. The total royalty fee to be paid may be adjusted based on the timing of the Company's sales and the amount ultimately paid to the Company by large aircraft manufacturer to support the development.
- d) Certain nano-optic products are subject to a 3% sales royalty in favor of Simon Fraser University ("SFU") where certain elements of the nano-optic technology originated. Royalties were \$Nil during the period since acquisition date until December 31, 2021. In 2014, the Company's wholly owned subsidiary, Nanotech, prepaid royalties that would offset against future royalties owed as part of the transfer of the intellectual property from SFU, of which \$197,016 remains prepaid as at December 31, 2021.
- e) Product revenue associated with six patents acquired by Nanotech is subject to royalties. The Company agreed to share 10% of any revenues related to the patents received from a specific customer for a period of two years and ongoing royalties of 3% to 6% on other revenues derived from the patents for a period of five years. There were no royalties during the year ended December 31, 2021.
- f) As at December 31, 2021, the Company had on-going commitments for maintenance contracts as follow:

2022	\$	292,125
2023		43,730
2024		3,105
		<u>\$ 338,960</u>

29. Subsequent events

Subsequent to December 31, 2021, 82,753 stock options and 156,728 warrants were exercised.

Item 9. Changes in and Disagreements With Accountants on Accounting and Financial Disclosure.

None.

Item 9A. Controls and Procedures.

Evaluation of Disclosure Controls and Procedures

Management, with the participation of the Chief Executive Officer and Chief Financial Officer, has evaluated the effectiveness of the Company's disclosure controls and procedures (as defined in Rules 13a-15(e) and 15d-15(e) under the Exchange Act) as of December 31, 2021.

Based on this evaluation, the Company's management including the Chief Executive Officer and Chief Financial Officer have concluded that, due to the material weaknesses in the Company's internal control over financial reporting described below, the Company's disclosure controls and procedures were not effective as of December 31, 2021.

However, giving full consideration to the material weaknesses, the Company has concluded that the consolidated financial statements included in the Annual Report on Form 10-K present fairly, in all material respects, the Company's financial position, the results of its operations and its cash flows for each of the periods presented in conformity with U.S. generally accepted accounting principles.

Management's Report on Internal Control over Financial Reporting

The Company's management is responsible for establishing and maintaining effective internal control over financial reporting, as such term is defined in Securities Exchange Act Rule 13a-15(f). The Company's internal control over financial reporting is a process designed by and under the supervision of the Company's management, including the Company's Chief Executive Officer and Chief Financial Officer, and effected by the Company's management and other personnel, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of consolidated financial statements for external purposes in accordance with U.S. generally accepted accounting principles. The Company's management, under the supervision and with the participation of its Chief Executive Officer and Chief Financial Officer, conducted an evaluation of the effectiveness of the Company's internal control over financial reporting as of December 31, 2021, using the criteria set forth in *Internal Control – Integrated Framework (2013)* issued by the Committee of Sponsoring Organizations of the Treadway Commission. Based on this evaluation, management concluded that internal control over financial reporting was not effective as of December 31, 2021, due to material weaknesses in internal control over financial reporting.

A material weakness is a deficiency, or a combination of deficiencies, in internal control over financial reporting, such that there is a reasonable possibility that a material misstatement of the Company's annual or interim financial statements may not be prevented or detected on a timely basis.

Management has determined that it did not maintain effective internal controls over financial reporting due to the existence of the following identified material weaknesses:

- An ineffective control environment resulting from a lack of the required number of trained financial reporting, accounting, information technology (IT) and operational personnel with the appropriate skills and knowledge and with assigned responsibility and accountability related to the design, implementation, and operation of internal control over financial reporting.
- The insufficient number of personnel described above contributed to an ineffective risk assessment process necessary to identify all relevant risks of material misstatement and to evaluate the implications of relevant risks on its internal control over financial reporting.

- An ineffective information and communication process resulting from: (i) insufficient communication of internal control information, including objectives and responsibilities, such as delegation of authority; and (ii) ineffective general IT controls and ineffective controls over information from a service organization, resulting in insufficient controls to ensure the relevance, timeliness and quality of information used in control activities.
- As a consequence of the above, the Company had ineffective control activities related to the design, implementation and operation of process level and financial statement close controls which had a pervasive impact on the Company's internal control over financial reporting.
- An ineffective monitoring process resulting from the evaluation and communication of internal control deficiencies, including monitoring corrective actions, not being performed in a timely manner.

These material weaknesses resulted in material misstatements, which were corrected prior to the release of the consolidated financial statements as of and for the year ended December 31, 2021, and also in immaterial misstatements, some of which were corrected prior to the release of the consolidated financial statements as of and for the year ended December 31, 2021. These material weaknesses create a reasonable possibility that a material misstatement to the consolidated financial statements will not be prevented or detected on a timely basis.

In accordance with guidance issued by the SEC, companies are permitted to exclude acquisitions from their final assessment of internal control over financial reporting for the first fiscal year in which the acquisition occurred. Our management, with the participation of our Chief Executive Officer and Chief Financial Officer, has limited the evaluation of our internal controls over financial reporting to exclude controls, policies and procedures and internal controls over financial reporting of the recently acquired operations of Nanotech Security Corp. (acquired on October 5, 2021). The operations of Nanotech Security Corp. represent approximately 17% of our total assets and 45% of our total revenues for the year ended December 31, 2021.

KPMG LLP, our independent registered public accounting firm, has issued an attestation report on the Company's internal control over financial reporting, which report expresses an adverse opinion on the effectiveness of internal control over financial reporting.

Plan for Remediation of Material Weaknesses

Management is continuing to evaluate and strengthen the Company's internal controls over financial reporting to ensure that management can routinely prepare our financial statements under GAAP, meet the requirements of the Company's independent auditors and remain in compliance with the SEC reporting requirements. These efforts are time consuming and require significant resource investment that the Company is committed to making.

The Company is still developing and documenting the full extent of the procedures to implement to remediate the material weaknesses described above, however the current remediation plan includes:

- Training the newly hired ERP specialist and Supply Chain and Procurement Director.
- Identifying and hiring additional key positions necessary to support the Company's initiatives related to internal controls over financial reporting, including but not limited to Technical Accounting, Transactional Accounting, IT Management and Analysts.
- Hiring consultants to assist with process improvements and control remediation efforts in targeted accounting, IT and operations processes.
- Continuing on-going testing of policies and procedures implemented in late 2021 to assess their effectiveness.
- Formalizing its entity-wide risk assessment process, and documenting internal ownership of risk monitoring and mitigation efforts, with improved risk monitoring activities and regular reporting to those charged with governance at an appropriate frequency.

- Finalize a delegation of authority matrix to enforce desired limits of authority for key transactions, events, and commitments, and communicating these limits of authority to relevant personnel throughout the Company.

Changes in Internal Controls.

Except for the material weaknesses described above, no changes in the Company's internal control over financial reporting (as defined in Rules 13a-15(f) and 15d-15(f) under the Exchange Act) occurred during the quarter ended December 31, 2021 that has materially affected, or is reasonably likely to materially affect, the Company's internal control over financial reporting.

Limitations on Effectiveness of Internal Controls

Management, including the Chief Executive Officer and Chief Financial Officer, does not expect that disclosure controls or internal controls, when effective, will prevent all error and all fraud. A control system, no matter how well conceived and operated, can provide only reasonable, not absolute, assurance that the objectives of the control system are met. In addition, the design of a control system must reflect the fact that there are resource constraints, and the benefits of controls must be considered relative to their costs. Because of the inherent limitations in all control systems, no evaluation of controls can provide absolute assurance that all control issues and instances of fraud, if any, within a company have been detected. These inherent limitations include the realities that judgments in decision-making can be faulty, and that breakdowns can occur because of simple error or mistake.

Additionally, controls can be circumvented by the individual acts of some persons, by collusion of two or more people or by management's override of the control. The design of any systems of controls is based in part upon certain assumptions about the likelihood of future events, and there can be no assurance that any design will succeed in achieving its stated goals under all potential future conditions. Over time, control may become inadequate because of changes in conditions, or the degree of compliance with the policies or procedures may deteriorate. Because of these inherent limitations in a cost-effective control system, misstatements due to error or fraud may occur and not be detected. Individual persons may perform multiple tasks which normally would be allocated to separate persons and therefore extra diligence must be exercised during the period these tasks are combined.

Item 9B. Other Information.

Effective as of February 28, 2022, the Board of Directors of the Company voted to promote Kenneth L. Rice to the position of Chief Operating Officer. In this new role Mr. Rice will retain his duties as Chief Financial Officer and will assume management responsibility for Business Development Operations, Manufacturing and Quality Control.

Item 9C. Disclosure Regarding Foreign Jurisdictions that Prevent Inspections.

None.

Item 10. Directors, Executive Officers and Corporate Governance.

Pre-Merger Period

The executive officers and directors of Torchlight for the Pre-Merger Period were:

Name	Age	Position(s)
John A. Brda	56	Chief Executive Officer, Secretary and Director
Roger N. Wurtele	74	Chief Financial Officer
Greg McCabe, Sr.	60	Director
Alexandre Zyngier	51	Director
Robert Lance Cook	64	Director
Michael Graves	53	Director

Below is certain biographical information of Torchlight's executive officers and directors:

John A. Brda – Mr. Brda served as Torchlight's Chief Executive Officer from December 2014 and President, Secretary and a member of the Board of Directors of Torchlight from January 2012 through the closing of the Merger. He has been the Managing Member of Brda & Company, LLC since 2002, which provides consulting services to public companies— with a focus in the oil and gas sector—on investor relations, equity and debt financings, strategic business development and securities regulation matters, prior to him becoming President of the company.

Roger N. Wurtele – Mr. Wurtele served as Torchlight's Chief Financial Officer from September 2013 through the closing of the Merger. He is a versatile, experienced finance executive that has served as Chief Financial Officer for several public and private companies. He has a broad range of experience in public accounting, corporate finance and executive management. Mr. Wurtele previously served as CFO of Xtreme Oil & Gas, Inc. from February 2010 to September 2013. From May 2013 to September 2013 he worked as a financial consultant for Torchlight. From November 2007 to January 2010, Mr. Wurtele served as CFO of Lang and Company LLC, a developer of commercial real estate projects. He graduated from the University of Nebraska and has been a Certified Public Accountant for 40 years.

Greg McCabe, Sr. – Mr. McCabe was a member of Torchlight's Board of Directors from July 2016 through the closing of the Merger. He was appointed Chairman of the Board of Directors of Torchlight in October 2016. He is an experienced geologist who brought over 36 years of oil and gas experience to Torchlight. He is a principal of numerous oil and gas focused entities including McCabe Petroleum Corporation, Manix Royalty, Masterson Royalty Fund and GMc Exploration. He has been the President of McCabe Petroleum Corporation from 1986 to the present. Mr. McCabe has been involved in numerous oil and gas ventures throughout his career and has a vast experience in technical evaluation, operations and acquisitions and divestitures.

Alexandre Zyngier – Mr. Zyngier served on Torchlight's Board of Directors from June 2016 through the closing of the Merger. He has been the Managing Director of Batuta Advisors since founding it in August 2013. The firm pursues high return investment and advisory opportunities in the distressed and turnaround sectors. Mr. Zyngier has over 20 years of investment, strategy, and operating experience. He is currently a director of Atari SA and of certain private entities. Before starting Batuta Advisors, Mr. Zyngier was a portfolio manager at Alden Global Capital from February 2009 until August 2013, investing in public and private opportunities. He has also worked as a portfolio manager at Goldman Sachs & Co. and Deutsche Bank Co. Additionally, he was a strategy consultant at McKinsey & Company and a technical brand manager at Procter & Gamble. Mr. Zyngier holds an MBA in Finance and Accounting from the University of Chicago and a BS in Chemical Engineering from UNICAMP in Brazil.

Robert Lance Cook – Mr. Cook was a member of Torchlight's Board of Directors from February 2019 through the closing of the Merger. Since August 2020, he has been the President of Sage Geosystems LLC, a company founded in Texas in 2020 which has developed a proprietary geothermal process which recently received funding for field trials. Previously, he was the Vice President of Production Operations of WellsX Corp. from July 2018 to August 2020. WellsX provides hydraulic fracturing and related oilfield services. Additionally, he has been the Managing Partner of Metis Energy LLC since January 2017, which owns and operates oil and gas wells in Texas as well as holds proprietary intellectual properties. Further, he is the President of Sage Geosystems LLC, a company founded in Texas in 2020 which has developed a proprietary geothermal process which is currently seeking funding for field trials. Prior to holding these positions, Mr. Cook worked for Shell Oil Company and its subsidiaries for over 36 years, retiring from the company in September 2016. He held numerous management and engineering positions for Shell, including most recently Chief Scientist for Wells and Production Technology and Chief Operations Officer for SWMS JV with Great Wall Drilling Company from January 2012 until his retirement. He holds a Bachelor of Science in Petroleum Engineering from the University of Texas.

Michael Graves – Mr. Graves served on the Board of Directors of Torchlight from August 17, 2017 through the closing of the Merger. He is a Certified Public Accountant, and since 2005 he has been a managing shareholder of Fitch & Graves in Sioux City, Iowa, which provides accounting and tax, financial planning, consulting and investment services.

Since 2008, he has also been a registered representative with Western Equity Group where he has worked in investment sales. He is also presently a shareholder in several businesses involved in residential construction and property rentals. Previously, he worked at Bill Markve & Associates, Gateway 2000 and Deloitte& Touche. He graduated Summa Cum Laude from the University of South Dakota with a B.S. in Accounting.

Code of Ethics

Torchlight adopted a code of ethics that applied to its principal executive officer, principal financial officer, principal accounting officer or controller, or persons performing similar functions. The Code of Ethics was previously available at torchlightenergy.com.

Audit Committee

Torchlight maintained a separately designated standing audit committee until the closing of the Merger. The Audit Committee consisted of three independent directors, Alexandre Zyngier, Michael Graves, and Robert Lance Cook. Mr. Zyngier was the Chairman of the Audit Committee, and the Board of Directors determined that he is an audit committee financial expert as defined in Item 5(d)(5) of Regulation S-K. The primary purpose of the Audit Committee was to oversee Torchlight's accounting and financial reporting processes and audits of its financial statements on behalf of the Board of Directors. The Audit Committee met privately with management and with Torchlight's independent registered public accounting firm and evaluated the responses by management both to the facts presented and to the judgments made by its outside independent registered public accounting firm.

Post-Merger Period

The following table sets forth information with respect to the Company's directors and its executive officers as of April 24, 2022.

Name	Age	Position(s)
George Palikaras	41	President, Chief Executive Officer and Director
Kenneth Rice	68	Chief Financial Officer and Executive Vice President
Jonathan Waldern	62	Chief Technology Officer
Ram Ramkumar	71	Chairman of the Board of Directors
Maurice Guitton	74	Director
Allison Christilaw	59	Director
Steen Karsbo	63	Director
Eric Leslie	66	Director
Ken Hannah	54	Director

Set forth below are the names, positions held and business experience of the Company's directors and executive officers as of April 24, 2022. Officers serve at the discretion of the board of directors. There are no family relationships among any of our directors or executive officers.

George Palikaras was appointed the President and CEO of the Company in June 2021, when Metamaterial, Inc. combined with Torchlight Energy Resources, Inc. Mr. Palikaras has held this role at the Company since June 2021 and he held the same role at Metamaterial, Inc. from 2011 through June 2021. Mr. Palikaras presently holds no other directorships in publicly traded companies. Mr. Palikaras has received Executive Education at Harvard, INSEAD, UCL and Stanford Business Schools. He earned his BEng. in Computer Engineering, an MSc. in Digital Communication Systems and did his PhD studies in Metamaterial science.

Kenneth L. Rice Jr. has served as the Company's Chief Financial Officer and Executive Vice President since June 2021 and served as Chief Financial Officer and Executive Vice President of Metamaterials, Inc. from December 2020 to June 2021. From April 2016 to March 2019, Mr. Rice held the position of Senior Vice President of LikeMinds, Inc. From April 2019 through November 2020 Mr. Rice was employed as CEO of Alderaan Group, LLC, a project management and consulting company. Mr. Rice holds no directorships. Mr. Rice holds a BSBA and an MBA from Babson College, a Juris Doctor from Suffolk University Law School and an LLM in taxation, specialized in international tax from Boston University Law School.

Jonathan Waldern, Ph.D. has served as the Chief Technology Officer of the Company since June 2021 and served as the Chief Technology of Metamaterials from December 2020 to June 2021. From 2003 through November 2020 Jonathan was founder, chairman, Chief Executive Officer and Chief Financial Officer of SBG Labs (DBA DigiLens) in Sunnyvale. Mr. Waldern holds no directorships in any public companies. He holds a PhD in Computer Science (Virtual Reality) that was supported by IBM Research Labs, from Loughborough University of Technology.

Ram Ramkumar has served as a director and Chairman of the Board since June 2021 and served as a director and Chairman of the board of directors of Metamaterial, Inc. from March 2020 to June 2021. He served as Chairman of the board of Snipp Interactive which is listed on the TMX from 2014 to 2018. He was a director of Continental Precious Minerals ("CPM"), a TMX listed company from 2017 until March 2020 when CPM combined with Metamaterial Inc. Mr. Ramkumar has a Bachelor of Technology (Metallurgical Engineering) and Master of Business Administration from the University of Toronto and was a chartered accountant.

Maurice Guitton has served as a director of the Company since June 2021 and served as a director of Metamaterial, Inc. from March 2020 to June 2021. Since November 2011, Maurice has been the President and CEO of Versa Tech Consulting Limited, a consulting company focused on advising its clients on composite materials. He served as Chairman of the board of Snipp Interactive which is listed on the TMX from 2014 to 2018. Mr. Guitton has no other directorships at present.

Allison Christilaw has served as a director of the Company since June 2021 and served as a director of Metamaterial, Inc. from March 2020 to June 2021. From November 2014 to November 2018, Ms. Christilaw was CEO of Reddin Global Inc., a management consulting company. From November 2018 to present, Ms. Christilaw has been an independent consultant. Since September 2015 she has also held a position on the Appleby College Board of Governors and on the Haltech Regional Innovation Centre Board of Directors since 2019. Ms. Christilaw holds a Bachelor of Arts in Honors Business Administration and a Masters degree in Business Administration from the Richard Ivey School of Business at Western University.

Steen Karsbo has served as a director of the Company since June 2021 and served as a director of Metamaterial, Inc. from March 2020 to June 2021. From July 1980 through June 2019 Mr. Karsbo was employed at Satair A/S/Airbus in a variety of senior management roles. Mr. Karsbo holds no directorships other than his role as a director of the Company.

Eric Leslie has served as a director of the Company since June 2021 and served as a director of Metamaterial, Inc. from March 2020 to June 2021. From November 2015 through December 2021, he held the position of President and CEO of TRION Energy Solutions Corporation. Mr. Leslie does not presently hold any other board memberships. Mr. Leslie holds a Bachelor of Arts from Western University.

Ken Hannah has served as a director of the Company since June 2021. Mr. Hannah has held the positions of Senior Vice President, Chief Financial Officer of Caleres since February 2015 and Executive Vice President and Chief Financial Officer of JC Penney Company, Inc. from May 2012 to March 2014. Mr. Hannah does not hold any Board positions in public companies other than the Company. Mr. Hannah holds a Masters Degree in Business Administration from Saint Louis University and a Bachelor of Science from Southern Illinois University, Carbondale.

Delinquent Section 16(a) Reports

Section 16(a) of the Securities Exchange Act of 1934 requires the Company's directors and executive officers, and persons who own beneficially more than ten percent of its common stock, to file reports of ownership and changes of ownership with the SEC. Based solely upon a review of Forms 3, 4 and 5 and amendments thereto filed electronically with the SEC during the fiscal year ended December 31, 2021, the Company believes that the directors, executive officers, and greater than ten percent beneficial owners have complied with all

applicable filing requirements during the fiscal year ended December 31, 2021, except for (i) four untimely Form 3s each filed on September 29, 2021 by our Chief Executive Officer George Palikaras and 10% or more stockholder Nadine Geddes, on October 22, 2021 by 10% or more stockholder owner Anne Lambert, on October 22, 2021 by 10% or more stockholder Thomas Welch and Anne Lambert, and again on December 8, 2021 by 10% or more shareholder Thomas Welch, all with respect to the Torchlight Energy Resources, Inc. merger and these individuals becoming subject to reporting requirements; (ii) one untimely Form 4 filed on November 26, 2021 by its Chief Executive Officer George Palikaras with respect to two transactions occurring on November 19, 2021 and one transaction occurring on November 22, 2021, and (iii) one untimely Form 4 filed on November 29, 2021 by Director Steen Karsbo with respect to one transaction occurring on November 24, 2021; (iii) one untimely Form 4 filed on November 29, 2021 by Chief Technology Officer Jonathan Waldern with respect to two transactions on November 18, 2021; (iv) one untimely Form 4 filed on December 9, 2021 by 10% or more stockholder Thomas Welch with respect to one transaction on November 17, 2021, one transaction on November 18, 2021, two transactions on November 19, 2021, two transactions on November 22, 2021, two transactions on November 24, 2021, three transactions on November 29, 2021, and one transaction on November 30, 2021; and (v) one untimely Form 4 filed on January 12, 2021 by the former Chairman of Torchlight's Board of Directors Gregory McCabe with respect to three transactions occurring on September 18, November 11 and December 30, 2020.

Code of Conduct

The Company's board of directors has adopted a Code of Conduct, which applies to its directors, officers and employees. The Code of Conduct is posted on the Company's Internet web site at <https://metamaterial.com>. Any amendments to, or grant of waiver with respect to, any provision of the Company's Code of Conduct, will be disclosed noting the nature of such amendment or waiver as required or permitted under the applicable regulations of the SEC.

Procedures for Stockholder Recommendations of Nominees to the Board of Directors

There have been no material changes to the procedures by which stockholders may recommend nominees to our Board of Directors since we last provided disclosure regarding this process.

Audit Committee Members and Financial Expert

The Company maintains a separately designated standing audit committee. The Audit Committee currently consists of three independent directors, Ken Hannah, Allison Christilaw, and Maurice Guitton. The Board of Directors has determined that all members of the audit committee are independent directors, as defined in the Nasdaq qualification standards and by Section 10A of the Exchange Act. In addition, the Board of Directors has determined that Mr. Hannah, the Chairman of the Audit Committee, is an "audit committee financial expert" as defined in Item 407(d)(5)(ii) of Regulation S-K. The audit committee is governed by a charter adopted by the Board of Directors. The primary purpose of the Audit Committee is to oversee the Company's accounting and financial reporting processes and audits of its financial statements on behalf of the Board of Directors. The Audit Committee meets privately with management and with the independent registered public accounting firm and evaluates the responses by the Company's management both to the facts presented and to the judgments made by its outside independent registered public accounting firm.

Item 11. Executive Compensation.

Pre-Merger Period

The data set out below for the Pre-Merger Period reflects historical data for Torchlight for 2020 and for the Pre-Merger Period in 2021.

Summary Executive Compensation Table

Name and Principal Position	Year	Salary (\$)	Bonus (\$)	Option Awards (\$)	Total (\$)
John A. Brda Former CEO/Secretary/Director	2021	\$ 187,500	\$ 1,500,000	\$ -	1,687,500
	2020	\$ 375,000	\$ -	\$ -	375,000
Roger N. Wurtele Former Chief Financial Officer	2021	\$ 112,500	\$ 250,000	\$ -	362,500
	2020	\$ 225,000	\$ -	\$ -	225,000

Setting Executive Compensation

Torchlight fixed executive base compensation at a level believed to enable Torchlight to hire and retain individuals in a competitive environment and to reward satisfactory individual performance and a satisfactory level of contribution to overall business goals. Also considered was the compensation that was paid by companies believed to be competitors and by other companies with which Torchlight believed they generally compete for executives.

In establishing compensation packages for executive officers, numerous factors are considered, including the particular executive's experience, expertise, and performance, the company's overall performance, and compensation packages available in the marketplace for similar positions. In arriving at amounts for each component of compensation, the Compensation Committee strived to strike an appropriate balance between base compensation and incentive compensation. The Compensation Committee also endeavored to properly allocate between cash and non-cash compensation (including without limitation stock and stock option awards) and between annual and long-term compensation.

Employment Agreements

On July 15, 2020, Torchlight entered into new one-year employment agreements with each of John Brda, President and Chief Executive Officer, and Roger Wurtele, Chief Financial Officer. Their previous employment agreements expired in June 2020. Under the new agreements, Messrs. Brda and Wurtele will continue to receive their same annual salaries of \$375,000 and \$225,000, with 36% and 20% of the salaries, respectively, continuing to accrue unpaid until such time as the Board of Directors believes there is adequate cash for such payment, or as otherwise contemplated in the employment agreement. Each individual will be eligible for a bonus at the Compensation Committee's discretion. Each agreement provides that if there is a "change of control" in the company (as defined in the agreement), the employee will be paid in one lump sum any amounts owed to the employee under the agreement that are accrued and unpaid plus his salary that would be earned through the end of the term of the agreement. Each employment agreement has a covenant not to compete and provides for expense reimbursement, four weeks of vacation and certain other benefits.

Additionally, as part of their employment compensation, the Compensation Committee granted Mr. Brda an option to purchase a total of up to 2,250,000 shares of common stock, including up to 375,000 shares at an exercise price of \$0.50 per share and up to 1,875,000 shares at an exercise price of \$1.00 per share, and granted Mr. Wurtele an option to purchase a total of up to 750,000 shares of common stock, including up to 375,000 shares at an exercise price of \$0.50 per share and up to 375,000 shares at an exercise price of \$1.00 per share. The options were granted under Torchlight's Amended and Restated 2015 Stock Option Plan. The terms of the options of both executives provided that the options would vest upon either (a) the approval by shareholders of a change of control occurring prior to July 15, 2021, or (b) the company entering into a letter of intent with a third party prior to July 15, 2021 that contemplates a change of control, and the change of control transaction closes with that third party (or an affiliate(s) of that third party) at a date not later than July 15, 2022; subject, however, to acceleration and earlier vesting of all of the options in the event of (i) the termination of employment by the employee for "good reason" under his employment agreement or (ii) a determination of the Compensation Committee, at its discretion. In the event of the death or disability of the employee prior to vesting or if the company terminates the employee's employment for reasons other than for "cause" under the employment agreement prior to vesting, the option will still vest upon the

occurrence of the events described under clauses (a) or (b) above. The options, to the extent such options have not been exercised, will terminate and become null and void on July 15, 2025, if and only if the options vest as described above, or on July 15, 2021, if the options do not vest as described above, subject to the occurrence of the events contemplated under clause (b) above whereby the options would not terminate until July 15, 2022.

The following table details all outstanding equity awards held by our named executive officers at the end of the Pre-Merger Period:

Name and Principal Position	Option Award Type	Option Awards	Number of Securities Underlying Unexercised Options (#)	Number of Securities Underlying Unexercised Options (#)	Equity Incentive Plan awards: Number of Securities Underlying Unexercised Unearned Options (#)	Option Exercise Price (\$)	Option Expiration Date
		Number of Securities Underlying Unexercised Options (#)	Unexercisable (1)				
John A. Brda	Stock options	-		937,500	-	\$ 2.00	15-Jul-25
	Stock options	-		187,500	-	\$ 1.00	15-Jul-25
Roger N. Wurtele	Stock options	-		187,500	-	\$ 2.00	15-Jul-25
	Stock options	-		187,500	-	\$ 1.00	15-Jul-25

(1) The options were awarded on July 15, 2020. The Compensation Committee granted Mr. Brda an option to purchase a total of up to 1,125,000 shares of common stock, including up to 187,500 shares at an exercise price of \$1 per share and up to 937,500 shares at an exercise price of \$2.00 per share, and granted Mr. Wurtele an option to purchase a total of up to 375,000 shares of common stock, including up to 187,500 shares at an exercise price of \$1 per share and up to 187,500 shares at an exercise price of \$2.00 per share. The options were granted under our 2015 Stock Option Plan which plan was approved by stockholders on October 26, 2020.

The above number of options and exercise price are adjusted to reflect the 1:2 reverse stock split of the Torchlight's common stock effected immediately prior to the closing of the Arrangement agreement.

Compensation of Directors

Torchlight had no standard arrangement pursuant to which directors are compensated for any services they provide or for committee participation or special assignments. Historically, Torchlight granted stock options to directors on a year-to-year basis. On October 26, 2020, however, Torchlight instead approved accruing cash payments to the board members, until such time as Torchlight had adequate cash on hand to pay any such accrued amounts to the board members. Since that date, each independent member of the board has received \$100,000 per annum, payable \$25,000 per quarter in advance to each such board member, with the fourth quarter of 2020 being pro-rated.

Summary Director Compensation Table

Compensation to directors during the Pre-Merger Period was as follows:

Pre-Merger Period

Name and Principal Position	Fees Earned And Accrued in 2021 (\$)	Bonus (\$)	Option Awards (\$)	Total (\$)
Alexandre Zyngier	\$ 50,000	\$ -	\$ -	\$ 50,000
Robert Lance Cook	\$ 50,000	\$ -	\$ -	\$ 50,000
Michael Graves	\$ 50,000	\$ -	\$ -	\$ 50,000

Post-Merger Period

Compensation of Named Executive Officers

Summary Compensation Table

The following table sets forth certain summary information concerning compensation that the Company paid or accrued to or on behalf of each of the Company's executive officers (the "Named Executive Officers") during the fiscal year ended December 31, 2021.

Name and Principal Position	Year	Salary (\$)	Bonus (\$)	Option Awards (\$) (1)	Total (\$)
George Palikaras President/CEO/Director	2021	\$ 300,558	\$ 414,041	\$ 261,213	\$ 975,812
Kenneth Rice Chief Financial Officer and Executive Vice President	2021	\$ 231,100	\$ 300,850	\$ -	\$ 531,950
Jonathan Waldern Chief Technology Officer	2021	\$ 238,078	\$ 200,000	\$ 175,587	\$ 613,665

(1) Option awards value represents share based compensation from stock options valued using the Black Scholes Method at grant date.

Employment Agreements

George Palikaras

On July 1, 2021, Metamaterial, Inc. entered into an executive employment contract (the “Palikaras Employment Agreement”) with George Palikaras, pursuant to which the Company agreed to employ Mr. Palikaras as the President and Chief Executive Officer of the Company, effective as of July 1, 2021, for an indefinite term in consideration of an annual base salary of CAD \$553,500. Mr. Palikaras’ years of service since December 15, 2010 are recognized under the Palikaras Employment Agreement. Mr. Palikaras is eligible to participate in the Meta Employee Stock Option Plan. In the event that the Palikaras Employment Agreement is terminated the Company shall provide Mr. Palikaras with earned but unpaid salary, vacation pay and reimbursement of expenses and any other severance amounts as are required by applicable employment standards legislation.

Kenneth Rice

On December 14th, 2020, the Company entered into an executive employment agreement with Kenneth Rice (the “**Rice Employment Agreement**”) pursuant to which the Company agreed to employ Mr. Rice as the Chief Financial Officer and Executive Vice President of the Company, effective as of December 14th, 2020, for an indefinite term in consideration of an annual base salary of US\$156,000 which will be increased to US\$216,000 on March 1st, 2021. Mr. Rice is eligible to receive a quarterly bonus up to US\$27,000 based on his achievement of a balanced scorecard, in the sole discretion of the Company or the Meta Board. In the first two years, 25% of any quarterly bonus shall be issued in an amount of fully vested options of the Company. In addition, the Company granted Mr. Rice an option to acquire 300,000 common shares in connection with the execution of the Rice Employment Agreement.

In the event that the Rice Employment Agreement is terminated by Mr. Rice without Good Reason (as defined in the Rice Employment Agreement), Mr. Rice will continue to receive base salary and benefits for a period of 6 months after providing the Company advance written notice, but will not be entitled to quarterly bonuses for any calendar quarter that ends or begins during that period. In the event that the Rice Employment Agreement is terminated by the Company without cause or Mr. Rice resigns for Good Reason (as defined in the Rice Employment Agreement), the Company shall pay Mr. Rice continued payment of base salary for six months, plus payment of two quarterly bonuses. There will be a six months’ accelerated vesting of any unvested stock options. If Mr. Rice is terminated for Cause, he will only be entitled to earned but unpaid salary, vacation pay and reimbursement of expenses.

Jonathan Waldern

On December 16th, 2020, the Company entered into an executive employment agreement with Jonathan Waldern (the “**Waldern Employment Agreement**”) pursuant to which the Company agreed to employ Mr. Waldern as the Chief Technology Officer of the Company, effective as of December 16th, 2020, for an indefinite term in consideration of an annual base salary of US\$150,000 which increased to US\$250,000 on March 1st, 2021. Mr. Waldern is eligible to receive a quarterly bonus up to US\$50,000 based on his achievement of a balanced scorecard, in the sole discretion of the Company or the Meta Board. In the first two years, Mr. Waldern is also eligible to receive up to 0.25% per quarter of the then outstanding common stock of the Company as fully vested options of the Company. In addition, the Company granted Mr. Waldern an option to acquire 1,115,000 common shares in connection with the execution of the Waldern Employment Agreement.

In the event that the Waldern Employment Agreement is terminated by Mr. Waldern without Good Reason (as defined in the Waldern Employment Agreement), Mr. Waldern will continue to receive base salary and benefits for a period of 6 months after providing the Company advance written notice, but will not be entitled to quarterly bonuses for any calendar quarter that ends or begins during that period. In the event that the agreement is terminated by the Company without cause or Mr. Waldern resigns for Good Reason (each as defined in the Waldern Employment Agreement), the Company shall pay Mr. Waldern continued payment of base salary for six months, plus payment of two quarterly bonuses. There will be a six months’ accelerated vesting of any unvested stock options. If Mr. Waldern is terminated for cause, he will only be entitled to earned but unpaid salary, vacation pay and reimbursement.

Compensation of Directors

The compensation committee of the Company's board recommends director compensation to its board of directors based on factors it considers appropriate, market conditions and trends and the recommendations of management.

Name and Principal Position	Fees Earned And Accrued in 2021 (\$)	Bonus (\$)	Option Awards (\$ (1))	Total (\$)
Ram Ramkumar Chairman of the Board of Directors	\$ 45,042	\$ -	\$ 79,672	\$ 124,714
Maurice Guitton Director	\$ 37,542	\$ -	\$ 79,672	\$ 117,214
Allison Christilaw Director	\$ 37,542	\$ -	\$ 79,672	\$ 117,214
Steen Karsbo Director	\$ 37,542	\$ -	\$ 79,672	\$ 117,214
Eric Leslie Director	\$ 37,542	\$ -	\$ 79,672	\$ 117,214
Ken Hannah Director	\$ 22,500	\$ -	\$ 119,508	\$ 142,008

(1) Equity awards value comprises of share based compensation from DSUs valued using the grant date fair value.

Item 12. Security Ownership of Certain Beneficial Owners and Management and Related Stockholder Matters.

Equity Compensation Plan Information

The following table provides information about the common stock that may be issued upon the exercise of options, warrants and rights under all of our existing equity compensation plans as of December 31, 2021:

Plan category	Number of Securities To Be Issued Upon Exercise of Outstanding Options, Warrants and Rights (a) (#)	Weighted Average Exercise Price of Outstanding Options, Warrants and Rights (\$)	Number of Securities Remaining Available For Future Issuance Under Equity Compensation Plans (Excluding Securities Reflected In Column (a)) (#)
Equity compensation plans approved by security holders	16,878,056	0.54	18,067,689
Equity compensation plans not approved by security holders	-	N/A	-
Total equity compensation plans	16,878,056	0.54	18,067,689

Security Ownership of Certain Beneficial Owners and Management

The following table sets forth information, as of April 24, 2022, concerning, except as indicated by the footnotes below, (i) each person whom the Company knows beneficially owns more than 5% of its common stock, (ii) each of its directors, (iii) each of its named executive officers, and (iv) all of its directors and executive officers as a group. The table includes these persons' beneficial ownership of common stock. The Company has determined beneficial ownership in accordance with the rules of the SEC. Except as indicated by the footnotes below, it believes, based on the information furnished to it, that the persons and entities named in the table below have sole voting and investment power with respect to all shares of common stock that they beneficially own, subject to applicable community property laws. Applicable percentage ownership is based on 296,614,994 shares of common stock outstanding at April 24, 2022. In computing the number of shares of common stock beneficially owned by a person and the percentage ownership of that person, the Company deemed outstanding shares of common stock subject to stock options, DSUs or warrants held by that person that are currently exercisable or exercisable within 60 days after April 24, 2022. The Company did not deem these shares outstanding, however, for the purpose of computing the percentage ownership of any other person. Unless otherwise noted, stock options, DSUs and warrants referenced in the footnotes below are currently fully vested and exercisable. Beneficial ownership representing less than 1% is denoted with an asterisk (*).

Beneficial Ownership Table

Name and Principal Position	Shares	Common Stock	% of Class
Greater than 5% stockholders			
George Palikaras President/CEO/Director	33,431,941	(1)	10.1%
Thomas Welch	46,212,620	(2)	13.5%
Anne Lambert	46,212,620	(3)	13.5%
Executive Officers and Directors			
George Palikaras President/CEO/Director	33,431,941	(1)	10.1%
Kenneth Rice Chief Financial Officer and Executive Vice President	619,473	(4)	*
Jonathan Waldern Chief Technology Officer	2,022,682	(5)	*
Ram Ramkumar Director	1,215,038	(6)	*
Maurice Guitton Director	1,309,974	(7)	*
Allison Christilaw Director	398,508	(8)	*
Steen Karsbo Director	416,825	(9)	*
Eric Leslie Director	1,520,135	(10)	*
Ken Hannah Director	44,262	(11)	*
All directors, executive officers and other beneficial owners as a group (9 persons)	40,978,838		12.1%

- (1) Includes (a) 3,767,899 shares of common stock held by Mr. Palikaras, (b) 22,982,397 shares of common stock held by Lamda Guard Technologies LTD, (c) 3,307,775 shares of common stock held by Mr. Palikaras' wife, (d) 1,476,000 shares of common stock that Mr. Palikaras has the right to acquire from the Company within 60 days of April 24, 2022 pursuant to the exercise of Options, (e) 111,910 shares of common stock that Mr. Palikaras' wife has the right to acquire from the Company within 60 days of April 24, 2022 pursuant to the exercise of Options, (f) 1,461,240 shares of common stock that Mr. Palikaras has the right to acquire from the Company within 60 days of April 24, 2022 pursuant to the redemption of DSUs, and (g) 324,720 shares of common stock that Mr. Palikaras' wife has the right to acquire from the Company within 60 days of April 24, 2022 pursuant to the redemption of DSUs.
- (2) Includes (a) 23,241,845 shares of common stock held by Mr. Welch and (b) 22,970,775 shares held by Mr. Welch's wife, Anne Lambert.
- (3) Includes (a) 22,970,775 shares of common stock held by Ms. Lamberts and (b) 23,241,845 shares of common stock held by Ms. Lamberts' husband, Thomas Welch.
- (4) Includes 619,473 shares of common stock that Mr. Rice has the right to acquire from the Company within 60 days of April 24, 2022 pursuant to the exercise of Options.
- (5) Includes 2,022,682 shares of common stock that Mr. Waldern has the right to acquire from the Company within 60 days of April 24, 2022 pursuant to the exercise of Options.
- (6) Includes (a) 447,530 shares of common stock held by a company controlled by Mr. Ramkumar, (b) 738,000 shares of common stock that Mr. Ramkumar has the right to acquire from the Company within 60 days of April 24, 2022 pursuant to the exercise of Options, and (c) 29,508 shares of common stock that Mr. Ramkumar has the right to acquire from the Company within 60 days of April 24, 2022 pursuant to the redemption of DSUs.
- (7) Includes (a) 22,451 shares of common stock held by Mr. Guitton, (b) 1,029,697 shares of common stock that Mr. Guitton has the right to acquire from META within 60 days of April 24, 2022 pursuant to the exercise of Options, (c) 228,318 shares of common stock that Mr. Guitton has the right to acquire from the Company within 60 days of April 24, 2022 pursuant to the redemption of DSUs, and (d) 29,508 shares of common stock that Mr. Guitton has the right to acquire from the Company within 60 days of April 24, 2022 pursuant to the exercise of Warrants.
- (8) Includes (a) 369,000 shares of common stock that Ms. Christilaw has the right to acquire from the Company within 60 days of April 24, 2022 pursuant to the exercise of Options and (b) 29,508 shares of common stock that Ms. Christilaw has the right to acquire from the Company within 60 days of April 24, 2022 pursuant to the redemption of DSUs.
- (9) Includes (a) 18,317 shares of common stock held by Mr. Karsbo, (b) 369,000 shares of common stock that Mr. Karsbo has the right to acquire from the Company within 60 days of April 24, 2022 pursuant to the exercise of Options, and (c) 29,508 shares of common stock that Mr. Karsbo has the right to acquire from the Company within 60 days of April 24, 2022 pursuant to the redemption of DSUs.
- (10) Includes (a) 591,324 shares of common stock held by Mr. Leslie, (b) 899,303 shares of common stock that Mr. Leslie has the right to acquire from the Company within 60 days of April 24, 2022 pursuant to the exercise of Options, and (c) 29,508 shares of common stock that Mr. Leslie has the right to acquire from the Company within 60 days of April 24, 2022 pursuant to the redemption of DSUs.
- (11) Includes 44,262 shares of common stock that Mr. Hannah has the right to acquire from the Company within 60 days of April 24, 2022 pursuant to the redemption of DSUs.

Item 13. Certain Relationships and Related Transactions, and Director Independence.

The Audit Committee reviews all related party transactions (as defined by Item 404 of Regulation S-K) in accordance with NASDAQ listing standards. In addition, the charter of the Audit Committee requires the Audit Committee to review a summary of any director's or officer's related-party transactions and potential conflicts of interest on a yearly basis. The charter also requires the Audit Committee to review our conflict of interest policy (which is part of our Code of Conduct) and compliance with that policy on an annual basis.

On February 18, 2021, Thomas Welch and wife, Anne Lambert, converted certain debt instruments into common stock of Metamaterial Inc., which, together resulted in Thomas Welch and Anne Lambert holding common stock of META pursuant to the Arrangement. Prior to the issuance of these debt instrument, Thomas Welch and Anne Lambert were each an investor in and lender to Metamaterial Inc.

On March 16, 2021, Lamda Guard Technologies Ltd, a company controlled by Mr. Palikaras and his wife, converted an amount of CA\$290,230 into common stock of Metamaterial Inc.

Following the closing of the Merger, the Company issued indebtedness in the amount of \$15,000,000 to Oilco Holdings, Inc. Such loan is secured by shares of Common Stock held by Gregory McCabe and by Mr. McCabe's interest in the development of the Orogrande Project. The value of the collateral securing such loan is variable and may not fully collateralize the principal amount of such loan.

Gregory McCabe has controlling interests in Masterson Hazel Partners, LP ("MHP), McCabe Petroleum Corporation ("MPC"), Wolfbone Investments, LLC ("Wolfbone"), and ORRI – Magdalena Royalties, LLC ("Magdalena" and together with MHP, MPC and Wolfbone, the "McCabe Entities"). Mr. McCabe holds, at his option, a 10% working interest back-in after payout and a reversionary interest in the approximately 172,000 predominately contiguous acres in the Orogrande Basin in West Texas held by Hudspeth if drilling obligations are not met, all under the terms and conditions of a participation and development agreement among Hudspeth, MPC and Mr. McCabe. Mr. McCabe also holds a 4.5% overriding royalty interest in the Orogrande acreage, which he obtained prior to, and was not a part of the August 2014 transaction involving the Company and Hudspeth. Wolfbone and Magdalena together hold a 23.25% revenue interest and a 25% working interest in the Orogrande Project as of December 31, 2021.

On November 11, 2020, Torchlight and MPC sold their entire interest in a project in Winkler County, Texas. In connection with this sale, MPC allocated its cash consideration of \$100,000 to Torchlight in return for 313,480 shares of common stock of Torchlight.

Director Independence

All of the Company's current Board of Directors are considered independent except the Company's CEO, George Palikaras, who does not serve on any of the Board's respective committees. The definition of "independent" used herein is based on the independence standards of The Nasdaq Stock Market LLC and as defined by SEC rules and regulations. The Board performed a review to determine the independence of these Directors and made a subjective determination as to each of these directors that no transactions, relationships, or arrangements exist that, in the opinion of the Board, would interfere with the exercise of independent judgment in carrying out the responsibilities of a director of Meta Materials Inc. In making these determinations, the Board reviewed information provided by these directors with regard to each Director's business and personal activities as they may relate to the Company and its management.

Item 14. Principal Accounting Fees and Services.

The following table sets forth the fees paid or accrued by the Company for the audit and other services provided by its auditor, KPMG LLP during the year ended December 31, 2021 and the audit and other services provided by its auditor, Briggs & Veselka Co. during the year ended December 31, 2020.

	2021	2020
Audit Fees (1)	\$ 1,804,310	\$ 153,277
Tax Fees (2)	51,485	32,000
Total Fees	<u>\$ 1,855,795</u>	<u>\$ 185,277</u>

- (1) Audit Fees: This category represents the aggregate fees billed for professional services rendered by the principal independent accountant for the following:
- audit of the Company's annual financial statements and review of financial statements included in Form 10-K.
 - audit of the Company's financial statements for the years ended December 31, 2020 and 2019 subsequent to the conversion of the Company's IFRS based financial statements to conform with U.S. GAAP included in 8-K/A.
 - Other fees relating to obtaining consents from the Company's current and prior independent accountants.
- (2) Tax Fees: This category consists of the aggregate fees billed for professional services rendered by the principal independent consultant for tax compliance, tax advice, and tax planning.

Audit Committee's Pre-Approval Policies and Procedures

It is the policy of the Audit Committee to pre-approve all audit and permitted non-audit services proposed to be performed by our independent auditor. All audit and permitted non-audit services performed in fiscal 2021 were pre-approved by the Audit Committee. The process for such pre-approval is typically as follows: Audit Committee pre-approval is sought at one of the Audit Committee's regularly scheduled meetings following the presentation of information at such meeting detailing the particular services proposed to be performed. The authority to pre-approve non-audit services may be delegated by the Audit Committee, pursuant to guidelines approved by the Audit Committee, to one or more members of the Audit Committee. None of the services described above were approved by the Audit Committee pursuant to the exception provided by the Exchange Act rules.

The Audit Committee has reviewed the non-audit services provided by KPMG LLP ("KPMG") and has determined that the provision of such services is compatible with maintaining KPMG's independence for the period of time during which it has served as our independent auditor.

PART IV

Item 15. Exhibits, Financial Statement Schedules.

Exhibit Index

Exhibit Number	Exhibit Description	Incorporated by Reference		
		Form	Filing Date	Filed Herewith
1.1.0	Underwriting Agreement, dated February 8, 2021, between Torchlight Energy Resources, Inc. and Roth Capital Partners, LLC	10k	18-Mar-21	
1.2.0	Sales Agreement, dated as of June 16, 2021, by and between Torchlight Energy Resources, Inc. and Roth Capital Partners, LLC	8k	16-Jun-21	
1.2.1	Amended and Restated Sales Agreement, dated as of June 21, 2021, by and between Torchlight Energy Resources, Inc. and Roth Capital Partners, LLC	8k	21-Jun-21	
2.1.0	Arrangement Agreement between Metamaterial Inc. and Torchlight Energy Resources, Inc., dated December 14, 2020	8k	14-Dec-20	
2.1.1	Amendment to Arrangement Agreement dated February 3, 2021	8k	3-Feb-21	
2.1.2	Amendment to Arrangement Agreement dated March 11, 2021	8k	11-Mar-21	
2.1.3	Amendment to Arrangement Agreement dated March 31, 2021	8k	1-Apr-21	
2.1.4	Amendment to Arrangement Agreement dated April 15, 2021	8k	15-Apr-21	
2.1.5	Amendment to Arrangement Agreement dated May 2, 2021	8k	3-May-21	

2.1.6	Amendment to Arrangement Agreement dated June 18, 2021	8k	21-Jun-21	
2.2.0	Arrangement Agreement between Meta Materials Inc. and Nanotech Securities, dated August 4, 2021	10k	2-March-22	
3.1.0	Articles of Incorporation	10k	18-Mar-19	
3.1.1	Certificate of Amendment to Articles of Incorporation dated December 10, 2014	10Q	15-May-15	
3.1.2	Certificate of Amendment to Articles of Incorporation dated September 15, 2015	10Q	12-Nov-15	
3.1.3	Certificate of Amendment to Articles of Incorporation dated August 18, 2017	10Q	9-Nov-18	
3.1.4	Amendment to the Articles of Incorporation of Torchlight Energy Resources, Inc., dated June 14, 2021	8K	16-Jun-21	
3.1.5	Certificate of Amendment related to the Reverse Stock Split and Name Change, filed June 25, 2021	8k	29-Jun-21	
3.2.0	Amended and Restated Bylaws	8k	26-Oct-16	
3.3.0	Certificate of Designation of Preferences, Rights and Limitations of Series A Non-Voting Preferred Stock, dated June 14, 2021, as modified by the Certificate of Correction, dated June 15, 2021	8k	16-Jun-21	
3.3.1	Certificate of Designation of Preferences, Rights and Limitations of Series B Special Voting Preferred Stock, dated June 14, 2021	8k	16-Jun-21	
4.1.0	Form of Investor Warrant	10k	2-March-22	
4.2.0	Form of Broker Warrant	10k	2-March-22	
4.3.1	ACOA BDP (2015) - Contract 200804 - Original Document	10k	2-March-22	
4.3.1.1	ACOA BDP (2015) - Contract 200804 - Ammendment March 4, 2014			X
4.3.1.2	ACOA BDP (2015) - Contract 200804 - Ammendment November 24, 2014			X
4.3.1.3	ACOA BDP (2015) - Contract 200804 - Revised Repayment Schedule November 25, 2020			X
4.3.2	ACOA AIF (2015) - Contract 203260 - Original Document	10k	2-March-22	
4.3.2.1	ACOA AIF (2015) - Contract 203260 - Ammendment October 29, 2015			X
4.3.2.2	ACOA AIF (2015) - Contract 203260 - Ammendment Feb 11, 2016			X
4.3.2.3	ACOA AIF (2015) - Contract 203260 - Ammendment October 28 2016			X
4.3.3	ACOA BDP (2018) - Contract 211326 - Original Document	10k	2-March-22	
4.3.3.1	ACOA BDP (2018) - Contract 211326 - Ammendment May 17, 2019			X
4.3.3.2	ACOA BDP (2018) - Contract 211326 - Ammendment June 12, 2019			X
4.3.3.3	ACOA BDP (2018) - Contract 211326 - Ammendment November 4, 2019			X
4.3.4	ACOA BDP (2019) - Contract 212622 - Original Document	10k	2-March-22	
4.3.5	ACOA RRRF (2021) - Contract 217574 - Original Document	10k	2-March-22	
4.6	Form of Common Stock	10k	2-March-22	
10.1.1	Highfield Park, Dartmouth, NS - Lease 20200828 - Original Document	10k	2-March-22	
10.1.1.1	Highfield Park, Dartmouth, NS - Lease 20210603 - Amendment June 1, 2021	10k	2-March-22	
10.1.1.2	Highfield Park, Dartmouth, NS - Subscription Agreement	10k	2-March-22	

10.2.0	Employment Agreement with George Palikaras, dated July 1, 2021	10k	2-March-22	
10.2.1	Employment Agreement with Kenneth Rice, dated December 11, 2020	10k	2-March-22	
10.2.2	Employment Agreement with Jonathan Waldern dated December 16, 2020	10k	2-March-22	
10.14.0	Form of Meta Materials Inc. Indemnification Agreement	8k	29-June-21	
14.0	Code of Conduct	10k	2-March-22	
21.1.0	List of Subsidiaries	10k	2-March-22	
23.0	Consent of Independent Auditors			X
24.0	Power of Attorney	10k	2-March-22	
31.1	Certification of Principal Executive Officer Pursuant to Rules 13a-14(a) and 15d-14(a) under the Securities Exchange Act of 1934, as Adopted Pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.			X
31.2	Certification of Principal Financial Officer Pursuant to Rules 13a-14(a) and 15d-14(a) under the Securities Exchange Act of 1934, as Adopted Pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.			X
32.1	Certification of Principal Executive Officer Pursuant to 18 U.S.C. Section 1350, as Adopted Pursuant to Section 906 of the Sarbanes-Oxley Act of 2002.			X
32.2	Certification of Principal Financial Officer Pursuant to 18 U.S.C. Section 1350, as Adopted Pursuant to Section 906 of the Sarbanes-Oxley Act of 2002.			X
99.1	Report of PeTech Enterprises, Inc.			X
101.SCH	Inline XBRL Instance Document – the instance document does not appear in the Interactive Data File because XBRL tags are embedded within the Inline XBRL document.			
101.CAL	Inline XBRL Taxonomy Extension Calculation Linkbase Document			
101.DEF	Inline XBRL Taxonomy Extension Definition Linkbase Document			
101.LAB	Inline XBRL Taxonomy Extension Label Linkbase Document			
101.PRE	Inline XBRL Taxonomy Extension Presentation Linkbase Document			
104	Cover Page Interactive Data File (embedded within the Inline XBRL document)			

Item 16. Form 10-K Summary

None.

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.

Meta Materials Inc.

Dated: May 2, 2022

By: /s/ George Palikaras

George Palikaras
President and Chief Executive Officer
(Principal Executive Officer)

Dated: May 2, 2022

By: /s/ Kenneth Rice

Kenneth Rice
Chief Financial Officer and Chief Operating Officer
(Principal Financial and Accounting Officer)

<u>Signature</u>	<u>Title</u>	<u>Date</u>
<u>/s/ George Pallifaras</u> George Palikaras	Chief Executive Officer <i>(Principal Executive Officer)</i>	<u>2-May-22</u>
<u>/s/ Kenneth Rice</u> Kenneth Rice	Chief Financial Officer <i>(Principal Financial Officer)</i>	<u>2-May-22</u>
<u>/s/ *</u> Ram Ramkumar	Chairman and Director	<u>2-May-22</u>
<u>/s/ *</u> Maurice Guitton	Director	<u>2-May-22</u>
<u>/s/ *</u> Allison Christilaw	Director	<u>2-May-22</u>
<u>/s/ *</u> Steen Karsbo	Director	<u>2-May-22</u>
<u>/s/ *</u> Eric Leslie	Director	<u>2-May-22</u>
<u>/s/ *</u> Ken Hannah	Director	<u>2-May-22</u>

By: /s/ Kenneth Rice
Attorney-in-Fact

Executive Officers

George Palikaras
President and Chief
Executive Officer

Kenneth Rice
Chief Financial Officer
and Chief Operating
Officer

Jonathan Waldern
Chief Technology
Officer

Board of Directors

George Palikaras
President and
Chief Executive
Officer

John R. Harding
(Chair)
Managing Partner,
Harding Partners LP

Eric M. Leslie
President and CEO of
TRION Energy
Solutions
Corporation

Maurice Guitton
President and
Chief Executive
Officer, Versa
Tech Consulting
Limited

Allison Christilaw
Director and
Independent Consultant

Steen Karsbo
Director

Kenneth Hannah
Director

Transfer Agent and Registrar

First American Stock Transfer
4747 N. 7th St.
Suite 170
Phoenix, AZ 85014
602-485-1346

Corporate Headquarters

1 Research Drive
Dartmouth, Nova Scotia B2Y 4M9