

### **NOTICE TO READER**

This Management's Discussion and Analysis for the six months ended June 30, 2020, has been revised (the "Revised MD&A") from the original version that was filed on SEDAR on July 31, 2020 and is being refiled concurrently with the Company's restated condensed interim financial statements for the six months ended June 30, 2020. This Revised MD&A reflects the effects of the restated statements of cash flows within the condensed interim financial statements (which are detailed in the section entitled "Restatement" and derive from a misclassification on the statements of cash flows.



**Nano One Materials Corp.**  
**Management's Discussion & Analysis**  
**For the six months ended**  
**June 30, 2020**  
**(Amended and re-stated)**

## MANAGEMENT'S DISCUSSION & ANALYSIS

The following amended Management's Discussion & Analysis ("MD&A") of Nano One Materials Corp. ("Nano One" or the "Company") for the six months ended June 30, 2020, should be read in conjunction with the Company's amended condensed interim financial statements for the six months ended June 30, 2020, and the annual audited financial statements for the year ended December 31, 2019. The financial statements have been prepared in accordance with International Financial Reporting Standards ("IFRS"). All monetary amounts in this MD&A are expressed in Canadian dollars, unless otherwise indicated.

The information contained herein is presented as at **July 31, 2020** (the "MD&A Date") (**Amended as at September 30, 2020**), unless otherwise indicated.

For the purposes of preparing this MD&A, Management, in conjunction with the Board of Directors, considers the materiality of information. Information is considered material if: (i) such information results in, or would reasonably be expected to result in, a significant change in the market price or value of Nano One's common shares; or (ii) there is a substantial likelihood that a reasonable investor would consider it important in making an investment decision; or (iii) it would significantly alter the total mix of information available to investors. Management, in conjunction with the Board of Directors, evaluates materiality with reference to all relevant circumstances, including potential market sensitivity.

Additional information relevant to the Company's activities can be found on SEDAR at [www.sedar.com](http://www.sedar.com) and on the Company's website at [www.nanoone.ca](http://www.nanoone.ca).

## RESTATEMENT

This MD&A reflects the Company's amended statements of cash flows for the six months ended June 30, 2020, which gives effect to (i) the reclassification of proceeds from government assistance totalling \$525,576 (2019 - \$216,528) from financing activities to operating activities; and (ii) the reclassification of deposits on property and equipment totalling \$305,463 (2019 - \$nil) from operating activities to investing activities.

There were no changes to the presentation of the Company's statements of financial position, loss and comprehensive loss, and changes shareholders' equity.

## FORWARD-LOOKING STATEMENTS

Certain statements contained in this MD&A may constitute "forward-looking statements". Such term is defined in applicable securities laws. The forward-looking information includes, without limitation, the success of research and development activities and other similar statements concerning anticipated future events, conditions or results that are not historical facts. These statements reflect management's current estimates, beliefs, intentions and expectations; they are not guarantees of future performance. The Company cautions that all forward-looking information is inherently uncertain, and that actual performance may be affected by a number of material factors, many of which are beyond the Company's control. Such factors include, among others, risks relating to research and development; the Company's intellectual property applications being approved, the Company's ability to protect its proprietary rights from unauthorized use or disclosure, the ability of the Company to obtain additional financing and secure government assistance; the Company's limited operating history; the need to comply with environmental and governmental regulations; fluctuations in currency exchange rates; operating hazards and risks; competition; and other risks and uncertainties. Although the Company has attempted to identify important factors that could cause actual actions, events or results to differ materially from those described in forward-looking information, there may be other factors that cause actions, events or results not to be as anticipated, estimated or intended. Accordingly, actual future events, conditions and results may differ materially from the estimates, beliefs, intentions and expectations expressed or implied in the forward-looking information. All statements are made as of the MD&A Date and, except as required by law, the Company is under no obligation to update or alter any forward-looking information.

## COMPANY OVERVIEW

The Company was incorporated under the laws of the Province of Alberta on November 5, 1987 and continued under the laws of the Province of British Columbia. The Company's head office is located at Unit 101B, 8575 Government Street, Burnaby, BC, V3N 4V1, Canada. Its records office is located at Suite 2900 – 550 Burrard Street, Vancouver, BC V6C 0A3, Canada. The Company's common shares trade on the TSX Venture Exchange under the symbol "NNO.V".

The Company has developed a patented technology platform to improve the production and performance of cathode powders used in lithium-ion batteries. As of the MD&A Date, the Company holds sixteen (16) patents, with several others pending. The technology allows for the production of a wide range of lithium-based composite powders for different battery applications including electric vehicles, e-buses, power tools, renewable energy storage and consumer electronics, as well as next generation solid state batteries. The Company has built a demonstration pilot plant and is partnering with global leaders in the lithium-ion battery supply chain to improve the cost and durability of lithium-ion batteries, and to imbed its technologies for the manufacturing of materials used in electric vehicle, energy storage, and consumer electronic batteries. See "Technology and Intellectual Property" below for further details.

## OVERALL PERFORMANCE

During the six months ended June 30, 2020, the Company generated a net increase in cash and cash equivalents of approximately \$7,186,000. Key components of the increase were as follows:

- Closing of a private placement for gross proceeds of \$10,999,750 (discussed below);
- Exercise of stock options for total proceeds of \$503,625; and
- Proceeds from Government assistance programs of \$525,576 in aggregate, including \$250,000 from Sustainable Development Technology Canada ("SDTC") in relation to COVID-19 relief efforts.

On May 6, 2020, the Company announced that the Innovative Clean Energy (ICE) Fund of the Province of British Columbia's Ministry of Energy, Mines and Petroleum Resources will also be contributing \$3,033,000 (not yet received) to the Company's SDTC Program #2. The funds are non-repayable.

Additionally, the Company incurred a loss and comprehensive loss during the six months ended June 30, 2020 of \$1,604,519 (a decrease of approximately \$914,000 from the comparative period). This includes approximately \$369,000 in research recoveries.

During the six months ended June 30, 2020, research recoveries of approximately \$369,000 was the result of approximately \$978,000 incurred in research expenses (excluding non-cash depreciation allocations of approximately \$79,000) before deducting:

- Government assistance funding received or amortized of approximately \$1,202,000; and
- Cost recoveries of approximately \$224,000.

As at June 30, 2020, the Company had working capital of approximately \$10,034,000. See "Liquidity and Capital Resources" below for further details.

## Government Assistance

The Company receives funding from the Government of Canada for its research activities through various programs. During the six months ended June 30, 2020 and June 30, 2019, the following amounts were recognized as a reduction to research expenses:

	June 30, 2020 \$	June 30, 2019 \$
Cash received:		
Sustainable Development Technology Canada (SDTC)	250,000	-
Innovation Assistance Program (IAP)	194,606	-
Industrial Research Assistance Program (NRC-IRAP)	78,270	32,836
Other Grants	2,700	15,000
Automotive Supplier's Innovation Program (ASIP)	-	168,692
	<b>525,576</b>	<b>216,528</b>
Non-cash amortization of deferred government assistance:		
(1) Sustainable Development Technology Canada (SDTC)	676,373	-
	<b>1,201,949</b>	<b>216,528</b>

- (1) The SDTC non-cash amortization recognized during the six months ended June 30, 2020, represents a pro rata reduction of the deferred government assistance (liability) balance based on the expenditures incurred by the Company on SDTC Program #2 (Milestone 1) for the period then ended.

The cumulative amount of program funding received from the Government of Canada for all periods are as follows:

	June 30, 2020 \$	December 31, 2019 \$
Sustainable Development Technology Canada (SDTC)	3,305,111	3,055,111
Automotive Supplier's Innovation Program (ASIP)	1,733,506	1,733,506
Industrial Research Assistance Program (NRC-IRAP)	690,951	612,681
Innovation Assistance Program (IAP) (from NRC-IRAP)	194,606	-
Scientific Research & Experimental Development (SR&ED)	98,661	98,661
Other Grants	80,059	77,359
	<b>6,102,894</b>	<b>5,577,318</b>

The Company's primary active Government assistance program as that with SDTC, as follows:

### Sustainable Development Technology Canada ("SDTC"):

#### *SDTC Program #2:*

Effective July 1, 2019, the Company executed a contribution agreement with SDTC for a non-repayable grant of up to \$5,000,000 in respect of the Company's "Scaling Advanced Battery Materials" project. During the six months ended June 30, 2020, the Company received an additional one-time non-repayable grant of \$250,000 from SDTC in the form of an additional Milestone 1 payment in relation to COVID-19 pandemic relief, thereby increasing the SDTC Program #2 contribution from SDTC to \$5,250,000 (collectively, the "grant").

This project will support scale up activities with industrial partners and collaborators. The project proposal to SDTC involves five multinational manufacturers and European automakers contributing at various stages of research, development, piloting and commercialization. Nano One is engaged with Pulead Technology, Saint-Gobain, and Volkswagen Group Research. Details on the other two project contributors remain confidential.

On May 6, 2020, the Company announced that the Innovative Clean Energy (ICE) Fund of the Province of British Columbia's Ministry of Energy, Mines and Petroleum Resources will be contributing \$3,033,000 to the SDTC Program #2. The funds are non-repayable, and the Company will receive the funds in alignment with the SDTC grant as described above.

*Government assistance (continued)*

The funds from SDTC are payable to the Company in five instalments including the release of a final 10% hold-back of \$500,000 to the Company upon satisfactory review and approval of the project by SDTC. The instalments from SDTC are to be paid to the Company at the beginning of each of the four (4) project phases (“Milestones”) through to June 30, 2024. Each instalment payment is subject to the Company meeting the specific project Milestones and having available cash resources to match each instalment from SDTC.

A reconciliation of the budgeted expenditures on the SDTC Program #2 (all Milestones) is as follows:

	\$
Budgeted cash expenditures required by the Company, gross	11,939,374
Original SDTC Funding (received)	(5,000,000)
Additional SDTC Funding (received)	(250,000)
Additional Province of British Columbia Funding (not yet received)	(3,033,000)
<b>Budgeted cash expenditures required by the Company, net</b>	<b>3,656,374</b>

During the year ended December 31, 2019, the Company received the instalment for Milestone 1 from SDTC in the amount of \$973,814. Effective May 31, 2020, the Company had completed the budgeted expenditures in connection with the Milestone 1, as summarized below:

	\$
Budgeted expenditures for Milestone 1	2,682,865
Expenditures incurred by the Company to completion of Milestone 1	(2,659,438)
<b>Under (over) budget</b>	<b>23,427</b>

**Joint Development and Other Agreements**

*Saint-Gobain:*

In 2018, the Company entered into a Joint Development Agreement with Saint-Gobain a multinational corporation that produces a wide variety of construction and high-performance materials for applications in automotive, aerospace, health and energy. The goal of the collaboration is to enhance high temperature processing of Nano One’s lithium-ion battery materials. The two companies continue to work in collaboration, under the joint development agreement, to enhance the thermal processing and performance of their respective materials. Saint-Gobain is also one of the Company’s partners in connection with SDTC Program #2.

*Pulead:*

In 2019, the Company entered into a Joint Development Agreement with Pulead Technology Industry (Pulead). The objective of the collaboration with Pulead is to develop, evaluate and optimize scaled-up production of Pulead’s lithium iron phosphate (LFP) cathode materials using the Company’s patented technology, for use in lithium-ion batteries. Licensing and commercialization opportunities will also be explored as part of the collaboration. Pulead is also one of the Company’s partners in connection with SDTC Program #2.

Further in 2019, the Company reported that it identified raw material supply sources that meet both the Company’s performance targets and Pulead’s specifications for impurities and cost. Pulead has approved the key suppliers identified by the Company. This marks an important achievement in the Company’s commercialization efforts and moves the Company closer to the joint objective of licensing Nano One technology for the production of LFP by Pulead.

Moreover, in June 2020, the Company announced completion of an engineering report detailing enhanced design specifications and improved economics for the commercial scale production of lithium-ion battery cathode materials on a 4,800 tonne per year manufacturing line for the production of LFP. Further details are discussed in “The Takeaways” within “The Technology” below.

*Jett Capital:*

In June 2020, the Company announced that it has engaged Jett Capital Advisors, LLC (“Jett”) as a financial advisor to evaluate a range of opportunities for the valuation and commercialization of Nano One’s technology. Jett is a leading, independent boutique investment bank and specializes in the lithium-ion battery supply chain.

## THE TECHNOLOGY

### *The Opportunity*

The Company has developed a patented technology platform to improve the production and performance of cathode powders used in lithium-ion batteries. The technology allows for the production of a wide range of lithium-based composite powders for different battery applications including electric vehicles, e-buses, power tools, renewable energy storage and consumer electronics, as well as next generation solid state batteries.

Nano One's first addressable market is cathode materials for lithium-ion rechargeable batteries for electric vehicles (EV) (see "*The Electric Vehicle Industry*" below) and energy storage systems (ESS) where its advantageous technology can bring sustainable differentiation and value in terms of cost reduction and/or performance enhancements to early adopters. There is growing demand in the lithium-ion battery market for more cost effective and higher performance energy storage solutions. Nano One is well positioned to address these needs and anticipates growth potential for the technology in many other materials markets including dental, catalysts, specialty ceramics, pharmaceutical, semiconductors, agriculture, aerospace and communications.

Some of the cathode materials and compositions under research by the Company include:

- Lithium Iron Phosphate (LFP)
- Lithium Nickel Manganese Oxide, also referred to as "High Voltage Spinel" (HVS or LMNO)
- Lithium nickel manganese cobaltate (NMC); and

### *The Process*

Nano One has developed a new process of producing high-performance cathode materials, which uses standard equipment and simple methods that are known to scale in a wide range of industrial applications. This new process can produce higher performance composite materials while using lower cost feedstock and simpler processing. Nano One's patented and patent-pending technology is a flexible manufacturing platform that enables lithium carbonate (or hydroxide) to be used as feedstock alongside other raw materials comprising metals such as nickel, manganese, cobalt, iron, phosphate and aluminum. It is a water-based process operating at mild pH and temperature that forms the energy storing cathode materials used in lithium-ion batteries. The process can be configured to produce a range of different nanostructured materials and has the flexibility to shift with emerging and future battery market trends and other growth opportunities.

The process consists of three stages, and the major innovations lie in the first stage where a special mode of combining reactants controls crystal nucleation and growth of particles. Nucleation is the self-assembly of molecules into an organized structure. The desired nano-scale or superfine structure is formed in the first stage of the production cycle and eliminates many steps common to the incumbent industrial processes.

The desired crystal structure and morphology of the materials are formed readily in the final thermal processing steps, eliminating the need for long and repeated firings. The process produces materials with stable phase composition (crystal structure) and high porosity, but which is configurable to meet a variety of energy density requirements.

Nano-crystalline structures are formed early in the process and before calcination (i.e. heating to high temperature) which simplifies processing and is advantageous for material performance, process throughput, and scale-up. Characterization of the materials by electron microscope and x-ray provides evidence of the size, the composition and the kind of crystal structure, needed to withstand through thousands of charge cycles.

Typically, synthesis of nanomaterials at the bench scale is performed in small quantities anywhere from milligrams to grams of material. Subsequent scale-up from these small quantities often leads to detrimental changes in thermodynamics (heat, temperature, energy, work) and reaction kinetics (reaction rates and chemical change). Consequently, the Company has designed, constructed and commissioned a bench scale and pilot scale reactors that emulate the thermodynamic and reaction kinetics expected in full-scale production of cathode materials.

## *The Electric Vehicle Industry*

The electric vehicle industry is being driven partly by demands for longer range vehicles which require higher energy density lithium-ion batteries that are safe, reliable and cost-effective. These factors have increased the demand for cathode materials composed of higher nickel and lower cobalt content.

Nickel-rich cathode materials include nickel cobalt aluminate (NCA) and nickel-manganese cobalt oxide (NMC-532, 622 and 811 [Nb.: "NMC-XYZ," where X, Y, and Z refers to ratios of nickel, manganese, and cobalt, respectively]). These materials are expected to play an increasingly dominant role in the lithium-ion batteries used by major electric vehicle manufacturers.

Current industrial methods require higher cost lithium hydroxide as feedstock for these nickel-rich cathode materials. The flexibility of the Company's process enables the use of lithium feedstock in the form of either carbonate or hydroxide for the production of high-performance cathode materials which could reduce constraints on the supply of battery grade lithium by enabling new sources.

To date, the Company has demonstrated the synthesis of high energy cathode material for electric vehicles with energy densities on par with industry standards. This demonstration underlines the opportunity of Nano One's technology to enable a wider range of lithium sources for the rapidly growing electric vehicle market and supplements the Company's other opportunities in the space including improved cathode material durability, power, energy, and processing cost.

## *The Research and Milestones*

The Company successfully piloted NMC622 with 60% nickel content. These pilot tests were conducted at approximately 100 times normal lab scale, and the results provide added confidence that these nickel-rich materials can be manufactured at commercial scale.

The Company also began efforts on NMC811 with 80% nickel content, which provides relatively high energy density and has applications in longer range electric vehicles. However, NMC811 has well known instabilities that can lead to costly issues with safety, longevity and handling. The Company is developing an NMC811 material with proprietary coatings and additives to address the inherent shortcomings of NMC811.

The Company has successfully synthesized LNMO (Lithium Nickel Manganese Oxide), also referred to as "High Voltage Spinel" (HVS), in the pilot plant and has filed a patent application in respect to the process that coats the LNMO with a protective material to improve its stability at higher temperatures and its interface with solid-state electrolytes for the next generation of lithium-ion batteries. This material has been evaluated successfully by a number of strategic interests.

The Company has also developed a low-cost process for the production of high-performance Lithium Iron Phosphate (LFP). This process uses lower cost sources of lithium, iron and phosphate than incumbent processes and has been successfully piloted. The process also generates LFP that is already carbon coated thereby eliminating additional process steps. Further, the process generates material with small particle size which is desirable and with an initial energy capacity in excess of  $160\text{mAhg}^{-1}$  which is equivalent to or better than the highest performing LFP material available.

In June 2020, the Company announced a breakthrough development of a coated, single crystal cathode material for lithium-ion batteries that is providing up to four (4) times improvement in longevity compared to uncoated materials. This technology is applicable to all of Nano One's cathode materials but is especially relevant to NMC811.

## *The Takeaways*

Nano One's patented coated nanocrystal innovation provides improvements to the durability and cost of lithium-ion battery cathode materials, as well as capacity and charge rates. The nanocrystal innovation addresses a fundamental battery trade-off between energy density and durability. Increased durability would provide electric vehicle manufacturers greater flexibility in optimizing range, charging rates, safety and cost. Nano One's patented One-Pot process combines all input components - lithium, metals, additives and coatings - in a single reaction to produce a precursor that, when dried and fired, forms quickly into a single crystal cathode material simultaneously with its protective coating.

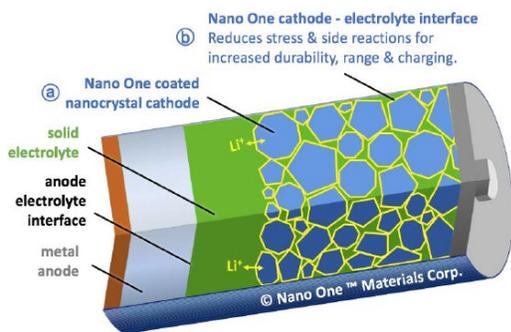
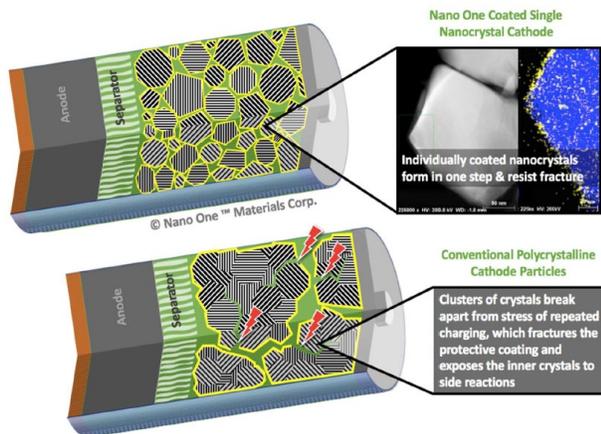


Illustration of a solid state lithium ion battery showing simplified anode, cathode and electrolyte interfaces. (a) Nano One's proprietary cathode materials have a uniform coating on individual single crystal particles, enabling rapid transfer of lithium ions to the solid electrolyte while (b) protecting the cathode from expansion and side reactions as the battery is operated. This increases durability and could improve lifetime, range, charging and/or cost.

cathode of choice for ESS (energy storage systems), replaces lead-acid batteries, and expands its foothold in the electrification of transportation.

As noted above, in June 2020, the Company announced completion of an engineering report prepared by Noram Engineering and Constructors of Vancouver, British Columbia detailing enhanced design specifications and improved economics for the commercial scale production of lithium-ion battery cathode materials using Nano One's patented process technology. The economics and design specifications in the report relate to the potential for a 4,800 tonne per year manufacturing line for the production of LFP (see "Pulead" within "Joint Development Agreements" above).

The Company has also completed preliminary engineering plans for a modular 3,300 tonnes/year NMC cathode production unit that could supply materials for roughly 24,000 60kWh electric vehicle batteries.

The enhanced budgetary analysis and economic modeling reveal a reduction in equipment and operating expenses from previous estimates which complement raw material cost reductions announced in partnership with Pulead. The engineering specifications and economic modeling in this report enhance the value of Nano One's technology and strengthen Nano One's commercial opportunities with Pulead and other global strategic interests. Further, the report forms an engineering basis for Nano One's other cathode materials, namely lithium nickel manganese cobalt oxide (NMC) and lithium nickel manganese oxide (LNMO).

The largest single challenge in solid state batteries is to design a stable and commercially viable interface between the solid electrolyte, of polymer, ceramic or glass composition, and the solid cathode and anode materials on either side of this electrolyte. The coated lithium nickel manganese oxide (LNMO) (a.k.a. high voltage spinel (HVS)) stabilizes the interface between cathode and electrolyte because (i) it does not expand and stress the cathode-electrolyte interface like other cathode materials, and (ii) the coating protects the cathode from side-reactions with the electrolyte while allowing the rapid transfer of lithium-ions between the electrolyte and the cathode. In comparison to other cathode materials, HVS is faster charging and operates at higher voltage enabling increased power and energy densities. HVS is also free of cobalt and the associated supply chain risk.

Nano One is working with various automotive manufacturers to evaluate its patented One Pot process and coated LNMO (HVS) cathode materials.

The Company continues to develop coating and doping (chemical additives) technologies for NMC and LNMO materials with the objective of improving both the durability and stability of these materials for use in solid state batteries and other advanced lithium-ion batteries. The Company's process is suitable for component gradients within crystals and surface coatings without the need for additional process steps.

Moreover, as Lithium Iron Phosphate (LFP) is the safest and lowest cost cathode material for lithium-ion batteries due to its high durability and exclusion of supply-constrained cobalt or nickel, cost reductions could significantly increase the demand for LFP as it becomes a

## FUTURE PLANS

The Company will continue to develop, optimize and demonstrate the benefits of producing various cathode materials using its processing technology, for use in lithium-ion batteries including the development of lithium iron phosphate (LFP), lithium nickel manganese cobaltate (NMC) and lithium nickel manganese oxide (LNMO, high voltage spinel (HVS)).

The Company will continue to collaborate with NORAM on the engineering design and specifications of full scale commercial production facilities. The Company will continue to develop and optimize its process and its advanced materials for third party evaluation with commercial interests. The Company continues to ramp up its internal testing requirements with test cell assembly and electrochemical characterization.

The Company intends to continue its joint development agreements with Saint-Gobain to develop improved thermal processing and with Pulead to develop a next generation commercial scale (LFP) production plant, and continue its collaborative work with Volkswagen under the SDTC development program to improve the longevity and durability of high energy density cathode materials for automotive applications.

As the lithium-ion battery market evolves, the Company believes its key opportunities lie in (i) manufacturing of value-added and differentiable cathode materials, (ii) enabling sources of lithium and other feedstocks that others cannot use, and (iii) customizing materials for solid state, fast charging and next-generation batteries. The Company is adjusting financial models and development programs to pursue these opportunities.

## INTELLECTUAL PROPERTY

The Company believes that monetization of its technology is best pursued by protecting its proprietary position with patents and by pursuing a licensing strategy. This is seen as a capially efficient means to leverage the supply chain, manufacturing, distribution and legal strengths of multinational materials producers, while allowing the Company and its collaborators to focus on core strengths in technology development.

As at the MD&A Date, the Company has been issued (16) sixteen patents as listed in the table below. The Company also has related patent applications pending throughout the world.

Patent Family	Short Description	Title
US 9,136,534 CA 2,906,009	Method of forming a powder by generation of a complexecelle	Complexometric Precursor Formulation For Industrial Production Of High Performance Fine And Ultrafine Powders And Nanopowders For Specialized Applications
US 9,159,999 US 10,446,835 CA 2,905,984	Method of forming a powder by formation of a surface interface	Complexometric Precursor Formulation Methodology For Industrial Production Of Fine and Ultrafine Powders and NanoPowders of Layered Lithium Mixed Oxides for Battery Applications
US 9,698,419 TW I517487 US 10,283,763 CN 105594023 JP 6271599 KR 10-1839000	Battery having a defined discharge capacity, defined porosity, low sodium content and low sulfur content.	Complexometric Precursor Formulation Methodology for Industrial Production of Fine and Ultrafine Powders and Nanopowders of Layered Lithium Mixed Oxides for Battery Production
CA 2905525	Reactor	Reactor Vessel for Complexecelle Formation
US 10,374,232 KR 10-1854708	NMC prepared by the Nano One Process	Complexometric Precursor Formulation Methodology for Industrial Production of Fine and Ultrafine Powders and Nanopowders for Lithium Metal Oxides for Battery Applications
TW I672852	Calcined powder comprising a surface stabilized with MnPO <sub>4</sub> . Method of forming the powder and battery comprising the powder.	Phosphate Stabilized Lithium Ion Battery Cathode
US 10,189,719	Process for the formation of lithium metal oxide including recycling of raw materials	Improved Process for the Manufacture of Lithium Metal Oxide Cathode Materials

The intellectual property was developed and is wholly-owned by the Company. The Company has filed other patent applications and may file additional patents at a later date to further strengthen its intellectual property and technology going forward, although no assurances can be given that it will be successful in such endeavours. The Company seeks to limit disclosure of its intellectual property by requiring employees, consultants and partners with access to the technology to execute confidentiality agreements and non-competition agreements and by restricting access to intellectual property and technology.

Despite the Company's efforts to protect its intellectual property and technology, unauthorized parties may attempt to copy aspects of its technology or to obtain and use information that the Company regards as proprietary. The laws of many countries do not protect proprietary rights to the same extent as the laws of the United States or Canada. See "Intellectual Property Protection" below within "Risks and Uncertainties".

## SUMMARY OF QUARTERLY RESULTS

The following table shows the results for the last eight fiscal quarters:

Period Ending	Revenue \$	Loss and comprehensive loss \$	Basic and Diluted Loss Per Share \$
June 30, 2020	-	(541,673)	(0.01)
March 31, 2020	-	(1,062,846)	(0.01)
December 31, 2019	-	(529,851)	(0.01)
September 30, 2019	-	(732,660)	(0.01)
June 30, 2019	-	(1,119,756)	(0.02)
March 31, 2019	-	(1,398,913)	(0.02)
December 31, 2018	-	(2,396,026)	(0.01)
September 30, 2018	-	(879,075)	(0.01)

## DISCUSSION OF OPERATIONS

### For the six months ended June 30, 2020 and June 30, 2019

The following table summarizes the Company's results of operations and cash flows for the six months ended June 30, 2020 and June 30, 2019, (amounts are rounded):

	June 30, 2020 \$	June 30, 2019 \$	Change \$
Revenue	-	-	-
Loss from operating expenses	(1,629,000)	(2,539,000)	910,000
Loss and comprehensive loss	(1,605,000)	(2,519,000)	914,000
Cash used in operating activities	(2,450,000)	(1,411,000)	(1,039,000)
Cash used in investing activities	(1,179,000)	(24,000)	(1,155,000)
Cash provided by financing activities	10,815,000	188,000	10,627,000

The significant components and/or significant fluctuations of loss from operating expenses and loss and comprehensive loss for the six months ended June 30, 2020 and June 30, 2019, were as follows:

	June 30, 2020 \$	June 30, 2019 \$	Increase (decrease) (rounded)
Consulting fees	242,477	34,805	208,000
Investor relations and shareholder information	262,038	214,253	48,000
Management and directors' fees	605,500	30,000	576,000
Professional fees	137,040	122,695	14,000
Research (recoveries) expenses, net	(368,813)	969,702	(1,339,000)

*DISCUSSION OF OPERATIONS (continued)*

Explanations for the changes illustrated in the table above are as follows:

- Management and directors' fees: increased due to bonus rewards paid to certain key management personnel amounting to \$487,500 in aggregate. Additionally, in January 2020 the Company engaged the services of a contract CFO where monthly fees are paid to the firm in which the CFO is employed. Finally, the Company began accruing directors' fees of \$20,000 during the six months ended June 30, 2020. The Company had not previously paid or accrued such fees.
- Research (recoveries) expenses: are presented net of government assistance recoveries, and other cost recoveries. Details with respect to research expenses are illustrated below.

Cash flows during the six months June 30, 2020

Cash used in operating activities increased by approximately \$1,039,000 during the six months ended June 30, 2020, as the net change in working capital items resulted in a greater use of cash which was partially highlighted by the Company making prepayments for future vendor services. Additionally, the Company incurred greater cash-based expenditures within the components of loss and comprehensive loss during the period.

Cash used in investing activities of approximately \$1,179,000 during the six months ended June 30, 2020 was primarily attributable to the purchase of a \$1,000,000 short-term investment (a non-redeemable guaranteed investment certificate bearing interest at 1.50%, per annum) that matures in May 2021, plus deposits on equipment, and purchases of lab equipment and expenditures on the pilot plant (within property and equipment) of approximately \$401,000 in aggregate.

Cash provided by financing activities of approximately \$10,815,000 was highlighted by the closing of a private placement in February 2020 (discussed below) which generated gross proceeds of approximately \$11,000,000, and the exercise of stock options during the six months ended June 30, 2020 which generated proceeds of approximately \$504,000. The gross proceeds from the private placement were partially offset by cash share issue costs for finders' fees and legal and regulatory services of approximately \$618,000 in aggregate, and facility lease payments of approximately \$70,000 associated with its office and laboratory facilities.

Research (recoveries) expenses for the six months ended June 30, 2020 and June 30, 2019, were as follows:

	June 30, 2020 \$	June 30, 2019 \$	Change (rounded) \$
Contractors	111,364	47,157	64,000
Labour	708,894	565,506	143,000
Safety and training	17,467	29,635	(12,000)
Supplies	124,797	167,092	(42,000)
Utilities	15,536	17,857	(2,000)
	<b>978,058</b>	<b>827,247</b>	<b>151,000</b>
Depreciation	79,120	358,983	(280,000)
Cost recoveries	(224,042)	-	(224,000)
Government assistance	(1,201,949)	(216,528)	(985,000)
<b>Research (recoveries) expenses, net</b>	<b>(368,813)</b>	<b>969,702</b>	<b>(1,338,000)</b>

Explanations for the changes in research expenses illustrated in the table above are as follows:

- Labour: increased as a result of additional hiring which occurred during the year ended December 31, 2019. Labour allocated to research expenses is also subject to fluctuation with respect to estimates of the portion of time spent on research activity compared to corporate activity for certain employees, and members of key management personnel. As of the MD&A Date, the Company has 29 employees of which 24 employees are either partially or fully dedicated to the Company's research activities.
- Depreciation: decreased as a result of the Company's pilot plant being fully depreciated during the year ended December 31, 2019, in accordance with an earlier estimate of its expected life of two years which resulted in a larger depreciation figure during the year ended December 31, 2019.
- Government assistance: increased and the details of which are discussed within "Overall Performance" above.

## TRANSACTIONS BETWEEN RELATED PARTIES

Key management personnel are the persons responsible for the planning, directing and controlling the activities of the Company and includes both executive and non-executive Directors, and entities controlled by such persons. The Company considers all Directors and Officers of the Company to be key management personnel.

The following transactions were carried out with related parties:

Nature of transaction or balance	Nature of relationship	Transactions	Transactions	Balances	Balances
		June 30, 2020	June 30, 2019	outstanding June 30, 2020	outstanding December 31, 2019
		\$	\$	\$	\$
Legal fees (1)	Company with a common Director/Officer	61,830	63,359	-	16,883
Management and directors' fees	(2)	605,500	30,000	-	5,250
Salaries and benefits / Research	Officers (*)	162,500	107,242	-	-
Expense reimbursements	Officer (*)	-	-	-	2,731
		<b>829,830</b>	<b>200,601</b>	<b>-</b>	<b>24,864</b>

(\*) Member of key management personnel.

(1) Legal fees incurred during the six months ended June 30, 2020, are included within professional fees (2019 – professional fees and intangible assets).

(2) Management fees are paid to a company controlled by a Director, and to a company where the CFO is employed. Directors' fees were accrued to the Company's Directors.

## LIQUIDITY AND CAPITAL RESOURCES

As at June 30, 2020, the Company had working capital of approximately \$10,034,000.

As noted in "Overall Performance" above, the Company's primary sources of liquidity during the six months ended June 30, 2020, were generated from:

- Closing of a private placement for gross proceeds of \$10,999,750;
- Exercise of stock options for total proceeds of \$503,625; and
- Proceeds from Government assistance programs of \$525,576 in aggregate, including \$250,000 from Sustainable Development Technology Canada ("SDTC") in relation to COVID-19 relief efforts.

The Company manages its capital structure and makes adjustments to it in light of changes in economic conditions and the risk characteristics of underlying assets. In order to maintain or adjust its capital structure, the Company may issue new common shares. The Company is not subject to any externally imposed capital requirements and does not presently utilize any quantitative measures to monitor its capital. The Company's capital structure as at June 30, 2020, is comprised of its components of shareholders' equity. There were no changes to the Company's approach to capital management during the six months ended June 30, 2020.

The Company currently has no source of revenues, though it receives proceeds from government assistance programs and certain cost recoveries from partners. In order to fund future research activities and pay for operating expenses, the Company will spend its existing working capital and raise additional funds as needed. The Company's ability to continue as a going concern on a long-term basis and realize its assets and discharge its liabilities in the normal course of business rather than through a process of forced liquidation is primarily dependent upon continued government assistance programs, financial support and/or contributions of its industry partners, the ability to raise additional financing from equity markets, and the ability to generate future profitable operations.

## SHARE CAPITAL INFORMATION

Transactions for the issue of share capital during the six months ended June 30, 2020 and subsequent thereto:

- On February 21, 2020, the Company completed a non-brokered private placement consisting of the issue of 9,565,000 units at a price of \$1.15 per unit for gross proceeds of \$10,999,750. Each unit consists one common share and one-half of a common share purchase warrant with each whole warrant exercisable into one common share at an exercise price of \$1.60 until February 21, 2023.

Cash finders' fees totalling \$557,221 and legal fees of \$61,137, were incurred in respect of the placement. Additionally, the Company issued 467,740 finders' warrants having a fair value of \$281,300.

- Between March and June 2020, the Company issued 2,010,000 common shares on the exercise of stock options at prices between \$0.25 and \$0.70 per share, for proceeds of \$503,625.
- In July 2020, the Company issued 255,000 common shares on the exercise of stock options at prices ranging between \$0.70 and \$1.57 per share, for proceeds of \$267,300.
- In July 2020, the Company issued 643,163 common shares on the exercise of warrants at a price of \$1.60 per share, for proceeds of \$1,005,061.

## OUTSTANDING SHARE DATA

The authorized share capital of the Company consists of unlimited common shares without par value. All issued common shares are fully paid. As at the MD&A Date, there were 79,662,965 common shares issued and outstanding.

### Stock options

On July 20, 2020, the Company granted 1,437,250 stock options to Officers, Directors, employees and consultants of the Company. The options are exercisable at \$2.52 for three years until July 20, 2023.

As at the MD&A Date, the Company has 4,998,175 stock options outstanding and exercisable with a weighted average exercise price of \$1.57 per share.

### Warrants

As at the MD&A Date, the Company has 5,283,577 warrants issued and outstanding with a weighted average exercise price of \$1.60 per share.

## FINANCIAL INSTRUMENTS

### Financial instruments - fair value

Financial instruments measured at fair value are classified into one of three levels in the fair value hierarchy according to the relative reliability of the inputs used to estimate the fair values. The three levels of the fair value hierarchy are:

- Level 1 - Unadjusted quoted prices in active markets for identical assets or liabilities;
- Level 2 - Inputs other than quoted prices that are observable for the assets or liability either directly or indirectly; and
- Level 3 - Inputs that are not based on observable market data.

### Classification of financial instruments

<b>Financial assets:</b>	<b>Classification:</b>	<b>Subsequent measurement:</b>
Cash and cash equivalents	FVTPL	Fair value
Short-term investment	Amortized cost	Amortized cost
Receivables	Amortized cost	Amortized cost
Deposits	Amortized cost	Amortized cost
<b>Financial liabilities:</b>	<b>Classification:</b>	<b>Subsequent measurement:</b>
Accounts payable and accrued liabilities	Amortized cost	Amortized cost
Accounts payable to related parties	Amortized cost	Amortized cost
Lease liabilities	Amortized cost	Amortized cost

The Company's financial instruments can be exposed to certain financial risks including liquidity risk, credit risk, interest rate risk, price risk, and currency risk. Details of these risks and related assessments as well as the fair value measurements of the Company's financial instruments are included in the Company's unaudited condensed interim financial statements for the six months ended June 30, 2020, within Note 11.

#### **CHANGES IN ACCOUNTING POLICIES INCLUDING INITIAL ADOPTION**

During the six months ended June 30, 2020, there were no changes to the Company's significant accounting policies, nor any new accounting policies adopted.

#### **CRITICAL ACCOUNTING ESTIMATES**

The preparation of financial statements in conformity with IFRS requires management to make estimates, judgments and assumptions that affect the reported amounts of assets and liabilities at the date of the financial statements and reported amounts of income and expenses during each reporting period. Estimates and assumptions are continuously evaluated and are based on management's experience and other factors, including expectations of future events that are believed to be reasonable under the circumstances. However, actual outcomes can differ from these estimates.

The information about significant areas of estimation uncertainty and judgment considered by management in preparing the financial statements are described in Note 2 of the Company's audited financial statements for the year ended December 31, 2019.

#### **OFF-BALANCE SHEET ARRANGEMENTS**

Nano One does not utilize off-balance-sheet arrangements.

#### **PROPOSED TRANSACTIONS**

There are no proposed transactions as the MD&A Date.

#### **RISKS AND UNCERTAINTIES**

Risk is inherent in all business activities and cannot be entirely eliminated. The risks and uncertainties described in this MD&A are considered by management to be the most important in the context of the Company's business as of the MD&A Date. Those risks and uncertainties are not inclusive of all the risks and uncertainties the Company may be subject to, and other risks may apply.

#### **Global Pandemic (COVID-19)**

In March 2020, the World Health Organization declared coronavirus COVID-19 a global pandemic. This contagious disease outbreak, which has continued to spread, and any related adverse public health developments, has adversely affected workforces, economies, and financial markets globally, potentially leading to an economic downturn. It is not possible for the Company to predict the duration or magnitude of the adverse results of the outbreak and its effects on the Company's business or results of operations or on the Company's industry partners who provide in-kind and/or financial contributions to the Company's government programs. There are travel restrictions and health and safety concerns that may delay the Company's research activities. Operations depend on safeguarding all personnel during the outbreak, which may be prohibitive in certain aspects. Nonetheless, the Company has implemented prevention measures at its office and laboratory facilities including the facilitation of remote work programs. Various Government wage and loan subsidies are available to qualified companies to assist them with operating costs during the pandemic, and the various programs are constantly being expanded and relaxed, which may qualify the Company for additional assistance. To date, the Company has qualified for and received an additional \$250,000 from Sustainable Development Technology Canada, and approximately \$195,000 from the Innovative Assistance Program (under NRC-IRAP), both in relation to COVID-19 pandemic relief.

## **Intellectual Property Protection**

The Company cannot provide any assurance that any intellectual property applications will be approved. Even if they are approved, such patents, trademarks or other intellectual property registrations may be successfully challenged by others or invalidated. The success of the Company and its ability to compete are substantially dependent on its internally developed technologies and processes which the Company will need to protect through a combination of patent, copyright, trade secret and trademark law.

The trademark, copyright and trade secret positions of the Company's business are uncertain and involve complex and evolving legal and factual questions. In addition, there can be no assurance that competitors will not seek to apply for and obtain trademarks and trade names that will prevent, limit or interfere with the Company's processes. There can be no assurance that the Company will have the financial resources to defend its patents, trademarks and copyrights from infringement or claims of invalidity. Litigation may be necessary in the future to enforce the Company's intellectual property rights, to protect the Company's trade secrets, to determine the validity and scope of the proprietary rights of others or to defend against claims of infringement. Any such litigation could result in substantial costs and diversion of resources and could have a material adverse effect on the Company's business, operating results and financial condition. There can be no assurance that the Company's means of protecting its proprietary rights will be adequate or that competitors will not independently develop similar services or products. Any failure by the Company to adequately protect its intellectual property could have a material adverse effect on its business, operating results and financial condition.

The patent positions of emerging companies can be highly uncertain and involve complex legal and factual questions. Thus, there can be no assurance that any patent applications made by or on behalf of the Company will result in the issuance of patents, that the Company will develop additional proprietary products that are patentable, that any patents issued or licensed to the Company will provide the Company with any competitive advantages or will not be challenged by any third parties, that the patents of others will not impede the ability of the Company to do business or that third parties will not be able to circumvent the patents assigned or licensed to the Company. Furthermore, there can be no assurance that others will not independently develop similar products, duplicate any of the Company's products or, if patents are issued and licensed to the Company, design around the patented product developed for the benefit of the Company.

Since patent applications are maintained in secrecy for a period of time after filing, and since publication of discoveries in the scientific or patent literature often lags behind actual discoveries, the Company cannot be certain that the inventors of the patents were the first creators of inventions covered by pending applications, or that it was the first to file patent applications for such inventions. There can be no assurance that the Company's patents, if issued, would be valid or enforceable by a court or that a competitor's technology or product would be found to infringe such patents.

The Company is not currently aware of any claims asserted by third parties that the Company's intellectual property infringes on their intellectual property. However, in the future, a third party may assert a claim that the Company infringes on their intellectual property. If the Company is forced to defend against these claims, which may be with or without any merit or whether they are resolved in favour or against the Company, the Company may face costly litigation and diversion of management's attention and resources. As a result of such a dispute, the Company may have to develop costly non-infringement technology or enter into license agreements which may not be available at favourable terms.

## **Performance and Scalability**

To be successful, Nano One will have to successfully scale its internally developed technology while maintaining high product quality and reliability. If Nano One cannot maintain high product quality on a large scale, the Company will be adversely affected. Nano One may encounter difficulties in scaling up cathode materials that are typically required to prototype full size battery cells. Even if Nano One is successful in developing its technologies, Nano One does not know whether the Company will do so in time to satisfy the requirements of the electric vehicle industry. The current facility is a pilot plant and lab with limited production capacity.

Any interruption in operations at the current facility could result in the inability to successfully execute the business plan. A number of factors could cause interruptions, including, but not limited to, equipment malfunctions or failures, work stoppages or slow-downs, damage to or destruction of the facility or regional power shortages. The success of the Company and its ability to compete are substantially dependent on its internally developed technologies.

## **Management of Growth**

The Company could experience growth that could put a significant strain on each of the Company's managerial, operational and financial resources. The Company must implement and constantly improve its operational and financial systems and expand, train and manage its employee base to manage growth. In addition, the Company expects that its operational and management systems will face increased strain as a result of the expansion of the Company's technologies. The Company might not be able to effectively manage the expansion of its operations and systems, and its procedures and controls might not be adequate to support its operations. In addition, management might not be able to make and execute decisions rapidly enough to exploit market opportunities for the expansion of the Company's technologies. If the Company is unable to manage its growth effectively, its business, results of operations and financial condition will suffer. Failure to effectively manage growth could also result in difficulty in launching new processing technology or enhancing existing processing technology, declines in quality or end-user satisfaction, increases in costs or other operational difficulties, and any of these difficulties could have a material adverse effect on its business, prospects, financial condition, results of operations and cash flows.

## **Execution of Business Plan**

The execution of the Company's business plan poses many challenges and is based on a number of assumptions. The Company may not be able to successfully execute its business plan. If the Company experiences significant cost overruns on its programs, or if its business plan is more costly than it anticipates, certain research and development activities may be delayed or eliminated, resulting in changes or delays to its commercialization plans, or the Company may be compelled to secure additional funding (which may or may not be available) to execute its business plan. The Company cannot predict with certainty its future revenues or results from its operations. If the assumptions on which its revenues or expenditures forecasts are based change, the benefits of the Company's business plan may change as well. In addition, the Company may consider expanding its business beyond what is currently contemplated in its business plan. Depending on the financing requirements of a potential acquisition or new product opportunity, the Company may be required to raise additional capital through the issuance of equity or debt. If the Company is unable to raise additional capital on acceptable terms, it may be unable to pursue a potential acquisition or new product opportunity.

## **Competition**

Despite efforts by the Company to protect its proprietary rights on which the Company's business is dependent, competitive products may be developed in the future. Competition could adversely affect the Company's ability to acquire market share.

## **Access to Proprietary Information**

The Company generally controls access to and distribution of its technologies, documentation and other proprietary information. Despite efforts by the Company to protect its proprietary rights from unauthorized use or disclosure, parties may attempt to disclose, obtain or use its solutions or technologies. There can be no assurance that the steps the Company has taken or will be taking will prevent misappropriation of its solutions or technologies, particularly in foreign countries where laws or law enforcement practices may not protect proprietary rights as fully as in Canada or the United States.

## **Information Technology Interruptions or Breaches**

The Company's business operations are managed through a variety of information technology systems. These systems govern all aspects of its operations. While the Company has implemented a number of measures to keep its technology systems fully operational and to mitigate the risks associated with a failure of its systems, the Company's systems are subject to damage or interruption from power outages, computer and telecommunications failures, computer viruses, cyber-attacks, security breaches, catastrophic events such as fires, floods, earthquakes, tornadoes, hurricanes, acts of war or terrorism, and usage errors by its employees. If the Company's information technology systems are damaged or cease to function properly, the Company may have to make a significant investment to fix or replace them and the Company may suffer loss of critical data and interruptions or delays in its operations in the interim. Any material interruption in its information technology systems could have a material adverse effect on the Company's business, prospects, financial condition, results of operations and cash flows.

## **INTERNAL CONTROLS OVER FINANCIAL REPORTING**

Management has designed internal controls over financial reporting to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with IFRS. The design of the Company's internal control over financial reporting was assessed as of the MD&A Date.

Based on this assessment, it was determined that certain weaknesses existed in internal controls over financial reporting. As indicative of many small companies, the lack of segregation of duties and effective risk assessment were identified as areas where weaknesses existed. The existence of these weaknesses is to be compensated for by senior management monitoring, which exists. Management will continue to monitor very closely all financial activities of the Company and increase the level of supervision in key areas. It is important to note that this issue would also require the Company to hire additional staff in order to provide greater segregation of duties, which is not a cost-effective course of action at this time. Accordingly, management has chosen to disclose the potential risk in its filings and proceed with increased staffing only when the budgets and workload will enable the action. The Company has attempted to mitigate these weaknesses, through a combination of extensive and detailed review by management of the financial statements, the integrity and reputation of senior accounting personnel, and candid discussion of those risks with the audit committee.

## **MANAGEMENT'S RESPONSIBILITY FOR FINANCIAL STATEMENTS**

Information provided in this report, including the financial statements, is the responsibility of management. In the preparation of the financial statements, estimates are sometimes necessary to make a determination of future value for certain assets or liabilities. Management believes such estimates have been based on careful judgments and have been properly reflected in the accompanying financial statements. Management maintains a system of internal controls to provide reasonable assurances that the Company's assets are safeguarded and to facilitate the preparation of relevant and timely information.

## **APPROVAL**

The Board of Directors of the Company has approved the disclosure contained in this MD&A.