



**HPQ Silicon Inc.**

(Formerly HPQ Silicon Resources Inc.)

**MANAGEMENT DISCUSSION AND ANALYSIS**

**For the period ended June 30, 2023**

## **INTRODUCTION**

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This management discussion and analysis ("MD&A"), prepared as at August 29, 2023, contains information as at June 30, 2023, and should be read in conjunction with the unaudited Consolidated Financial Statements for the periods ended June 30, 2023, of HPQ Silicon Inc (formerly HPQ Silicon Resources Inc.) ("HPQ-Silicon", the "Corporation" or "HPQ"). The information described in this report includes the activities of the parent company as well as its subsidiaries (see Note 4.2). The consolidated Financial Statements for the quarter were prepared by the management and have not been reviewed by the auditor. All amounts are in Canadian dollars.

The Notes referred to in this MD&A refer back to the Notes in the Consolidated Financial Statements. The Consolidated Unaudited Financial Statements are presented in compliance with the IAS 34 standards "Quarterly Financial Information" which calls for critical accounting estimates. They also demand of Management the exercise of its judgement in the application of the accounting methods used by HPQ Silicon. Note 5 of the Financial Statements outlines the particularly complex areas where such judgement is required as well as the hypotheses and estimates where such hypotheses and estimates have a major effect on the Consolidated Financial Statements. The consolidated Financial Statements were not adjusted in regard to the accounting value of Assets and Liabilities, Revenues and Expenses and to the classification used in the preparation of the Consolidated Cash Flow Statement under the hypothesis of the Corporation's ability to continue as a going concern. These adjustments could be significant.

HPQ Silicon Inc. was incorporated on December 20, 1996, under the Canada Business Corporations Act. The Corporation's shares are part of the Emerging Corporation category and are publicly traded on the TSX-Venture Exchange ("TSX-V") under the symbol:" HPQ". It is a reporting issuer under the securities laws of the provinces of Quebec, Alberta, and British Columbia. Since March 16, 2021, the Company's shares have been traded on the OTCQX Best Market under the symbol "HPQFF" and from July 7, 2023 , the Company's shares are trading on the OTCQB ("The Venture Market") still under the symbol "HPQFF". On July 4, 2022, the Company obtained the certificate of modification of its corporate name for HPQ Silicon Inc. as well as its classification of its activity for Industrial, Technological or Life Sciences group 1 on the TSX Venture Exchange as of August 2022. HPQ Silicon's Head Office is located at 3000, Omer-Lavallée Street, Suite 306, Montréal, Québec, Canada, H2Y 1R8.

The Corporation regularly presents supplementary information on its activities which are filed on SEDAR ([www.sedar.com](http://www.sedar.com)).

## **CAUTIONARY NOTE REGARDING FORWARD-LOOKING STATEMENTS**

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This MD&A contains forward-looking statements that are based on the Company's expectations, estimates and projections regarding its business, the development of technologies related to the transformation of quartz into silicon materials and its derivatives in which it operates as of the date of the MD&A. These statements are reasonable but involve a number of risks and uncertainties, which are identified in the regular filings done by the Corporation with the Canadian Regulatory Authorities, and there can be no assurance that they will prove to be accurate and the final results as well as future events could vary in a material manner and contradict the results expected under these Statements.

The reader is cautioned not to place undue reliance on forward-looking statements as, actual outcome and results may differ materially from those expressed in or implied by these forward-looking statements.

The Forward-Looking Statements are influenced by a variety of risks, uncertainties and other factors which could significantly alter the results and actual events. When used in this document the words such as

“could”, “plan”, “estimate”, “intention”, “potential”, “should” and similar expressions are Forward Looking Statements.

Even though the Corporation believes that the expectations expressed in these Forward-Looking Statements are reasonable, these statements are subject to risks and uncertainties and there is no assurance given by the Corporation that the expected results will correspond to the Forward-Looking Statements.

Many risks exist which could render these Forward-Looking Statements erroneous such as the inability to obtain patents or other development risks.

The Corporation’s ability to continue its operations is subject to securing additional financings needed to continue the development of its technologies, to start commercial production, and the continued support of its suppliers and creditors. Even though the Corporation was able to secure such financings in the past there is no guarantee it will be able to do so in the future.

**The Corporation commits to update its Forward-Looking Statements and to advise its shareholders if circumstances, estimates or opinions issued by Management changes.**

## **DESCRIPTION OF THE BUSINESS**

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The Company is a technology company specializing in green engineering processes for silica and silicon material production. HPQ projects are focused on proposing innovative silicon (Si)-based solutions all the while developing a unique portfolio of high value-added silicon (Si) and Silica (SiO<sub>2</sub>) products sought after by end users (Manufacturers of Li-Ion battery, Electric Vehicle (EV), anodes for Li-Ion batteries, to name just a few).

The company is also working on the development of a stand-alone system for manufacturing hydrogen under pressure by hydrolysis of silicon-containing materials.

The Corporation’s activities are focussed on the three (3) following niches:

### **1. SILICON (Si) NICHE**

- a) Developing the *PUREVAP™ “Quartz Reduction Reactor” (QRR)*, an innovative process to directly transform quartz (SiO<sub>2</sub>) into high-purity silicon (Si) (from 3N to 4N) in a single step.
- b) Within this niche, two additional initiatives stand out.
  - (i) The Batteries Initiative, where the company is primarily engaged in the development and commercialization of silicon-based anode materials, produced using PUREVAP™ QRR silicon, for Li-Ion battery applications.
  - (ii) The High Value Silicon Materials initiative, where the company is dedicated to the development and commercialization of micrometer-sized silicon materials, also produced with PUREVAP™ QRR silicon, for advanced applications such as silicon nitride.

### **2. FUMED SILICA (SiO<sub>2</sub>) NICHE**

- a) The company is focused on the development and commercialization of a new plasma process that enables the direct transformation of quartz into fumed silica.

### 3. OTHER NICHES

- a) In close collaboration with Novacium SAS, the company is working on the development of an autonomous system for the manufacture of hydrogen under pressure by hydrolysis of silicon-containing materials.

## HPQ TECHNOLOGIES

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### SILICON (Si) NICHE

Silicon (Si), also known as silicon metal, is a semi-conductor material and the second most abundant element in earth's crust. Like all other energy metals (lithium, graphite, cobalt, nickel, etc.), it does not exist in its pure state and is expensive to extract.

Silicon is also one of today's key strategic materials needed for the decarbonization of the economy and the Renewable Energy Revolution ("RER").

The EU, the United States and Australia declared Silicon a critical raw material as a wide range of modern technologies depends on it to make various numbers of industrial and consumer products.

The Silicon market is ripe for the development of disruptive technologies, because:

- To extract it commercially from Quartz ( $\text{SiO}_2$ ), of 1N to 2N purity an expensive & energy intensive carbothermic process, first invented in 1899, is still used,
  - Traditional silicon metal manufacturing results in the emissions of 5 tonnes (t) of  $\text{CO}_2$  per tonne (t) of silicon produced. This makes Silicon Metal manufacturing the largest emitter of  $\text{CO}_2$  among all metals and non-ferrous metals, based on a  $\text{tCO}_2/\text{t}$  product basis, as per the Intergovernmental Panel on Climate Change (IPCC), a United Nations body focused on climate change research.
- Depending on final application, (Solar, Electronics, Batteries) 2N purity silicon (chemical grade Silicon) (99.5% Si) must either be purified & or engineered.

### THE PUREVAP™ QUARTZ REDUCTION REACTOR (QRR)

The PUREVAP™ "Quartz Reduction Reactor" (QRR) is by design a Closed Electric Arc Furnace (CEAF) with the ability to operate under controlled atmospheric conditions. This innovative furnace enables the semi-continuous feeding of Silica ( $\text{SiO}_2$ ) and a carbon reductant, facilitating the production of 3N+ silicon in a single step. Notably, the QRR's design eliminates air infiltrations within the reactor, ensuring that the CO gas ("Co(g)") generated during the carbothermic reaction remains unoxidized. Consequently, the QRR produces a gas composition enriched with CO(g), which can be readily captured for further utilization. Thereby enabling CO<sub>2</sub>-free production of silicon.

Another advantage of the QRR is the fact that it uses 25% less feedstock to make the same amount of silicon as traditional production processes (4.5 Metric Tonnes (MT) to make 1MT of silicon as opposed to 6MT) — granting up to a 20% cash cost advantage, all the while producing a higher purity silicon (4N versus 2N).

### PUREVAP™ QRR PROGRESS MILESTONES

The PUREVAP™ (Gen3) Pilot Plant, a scale up version of the Gen 2 PUREVAP™ QRR by a factor of approximately 2,500 times, is being deployed to validate and replicate key findings previously identified during Gen 1 and 2 testing.

Started in June 2022, a vigorous testing program is ongoing and will take run for a period of approximatively 12 months, ending around the end of June 2023. The *PUREVAP™* QRR R&D programme is progressing.

This research and development phase takes place before the launch of the pre-commercial phases, which makes it possible to test the system in conditions that are as close as possible to a commercial operation. This phase also allows HPQ, its technology provider and subcontractor to validate and quantify the QRR's disruptive advantages as previously identified during Gen 1 and 2 testing.

The key trend emanating from the Gen3 QRR testing to date and the silicon purity results are:

- 1) Reproducibility of the one step production of **Silicon that exceeds the highest purity threshold (2N)** of commercially available silicon material, and
- 2) Reproducibility of the one-step production of **Battery Grade Silicon (3N+)**, the purity required for feedstock in the manufacturing of Silicon Base anode material, and
- 3) Reproducibility of the production of silicon using 25% **less feedstock** than conventional carbothermic processes that use a ratio of 6 tonnes (t) of raw materials to produce 1 t of metallurgical grade silicon (MG Si – 98.5% to 99,5%) [1].

For the period ended June 30, 2023, the Company incurred \$1,386,000 in expenses related to the advancement of the Gen3 Pilot plant test program.

#### ***PUREVAP™* QRR FUTURE PROGRESS MILESTONES**

During the coming months, the company's *PUREVAP™* QRR project activities will be focused on the following development milestones:

1. Successful completion of a Silicon pour.
2. Achievement of one-step production of 4N Silicon.
3. Commencement of commercial operations with six continuous production cycles daily, yielding 20 kg of Silicon per pour.
4. Production of Silicon materials for HPQ Silicon's anodes initiative.
5. Validation of QRR's capacity to produce up to 4N+ Si higher conversion efficiency of 75% compared to 50-60% with the conventional way].
6. Initiation of crucial engineering studies for the future Gen4 *PUREVAP™* - a 2,500 TPY system.
7. Securing grant financing for proof-of-concept studies concerning HPQ Green Silicon capability.
8. Launch of proof-of-concept studies for HPQ Green Silicon initiative. Centered on the capture of CO gas generated during direct carbothermic production of silicon from quartz and convert it to solid carbon that can be re-injected in the next production cycle.

Costs related to the work required to achieve milestones #2 to #5 will be negotiated by mutual agreement between HPQ and its technology provider during the third quarter of 2023.

The cost of reaching milestone #6 is preliminarily estimated at \$350,000. This cost covers the preparation of a concept study expected to be completed in eight (8) months or less. The objective of this study is to stimulate the advancement of pre-commercialization for the *PUREVAP™* QRR technology.

The costs for achieving milestones #7 and #8 are currently being finalized. This approach aims to facilitate the Corporation in seeking partial financing for these costs through a grant from the appropriate government authorities.

#### **INTELLECTUAL PROTECTION FOR THE *PUREVAP™* QRR TECHNOLOGIES**

For the period ending June 30, 2023, the company's *PUREVAP™* QRR patent portfolio consisted of a patent acquired from PyroGenesis Canada Inc. in 2016, and a second patent emanating from ongoing improvement to the *PUREVAP™* QRR processes, filed in 2019.

The first patent covers the *"silica to high purity production process"*. In March 2022 the United States Patent and Trademark Office issued U.S. Patent No. 11,267,714 for *"the silica to high purity production process"*. This patent is still pending in other jurisdictions that should be issuing their patent approval for this invention in due time.

The second is for a *"new and novel process for continuous operations of a plasma arc furnace under vacuum"*. This patent is still pending in different jurisdictions that should be issuing their patent approval for this invention in due time.

In January 2023, a third QRR patent application was filed in France. This new application is provisional and is entitled "Apparatus and method for producing silicon by carboreduction". Regardless of the fact that HPQ-Silicon is the owner of this patent, French law grants the inventors of this patent compensation in consideration of the work they have done in the realization of the patent, which encumbers the patent and becomes a debt payable by the owner to the inventors. The Parties (HPQ and the inventors) then agreed, after negotiation, that this debt will be settled by the payment of a lump sum of €60,000, or €20,000 per inventor.

End of February 2023, the Parties agreed to settle this €60,000 debt through the issuance by HPQ Silicon of shares from its capital. 360,000 units representing a total consideration of CAD \$86,400 were issued. Each Unit consists of one (1) common share of the Company and one (1) warrant to purchase one (1) additional common share of the Company at an exercise price of \$0.32, for a period of two (2) years after the closing date of the transaction.

In March 2023, a fourth QRR patent application for HPQ Silicon was filed in France. This new application is provisional and is entitled "Apparatus and method for producing silicon of 3n purity or higher by purification of silicon of 2n purity". As before, this patent application is subject to French law, and it follows that the inherent patent is encumbered by the debt corresponding to the compensation payable to the inventors. HPQ Silicon and the inventors have agreed that HPQ Silicon's lump sum payment of €60,000 to the inventors will fully settle this debt and result in a final discharge.

In early June 2023, the Parties agreed to settle this debt of €60,000, or €20,000 per inventor, through the issuance by HPQ Silicon of its share capital of 432,000 units representing a total consideration of CAD of \$88,560. Each Unit will consist of one (1) common share of the Company and one (1) warrant to purchase one (1) additional common share of the Company at an exercise price of \$0.27 for a period of two (2) years after the closing date of the transaction.

For the first semester of 2023, the Company incurred \$285,112 related to *PUREVAP™* QRR patent applications and its filling in all jurisdictions where the Company has applied.

Under the terms of the 2016 patent purchase agreement, HPQ owns the original patent, a second patent from the R&D work done with Gen1 and Gen2 equipment, any proprietary know-how from the development of the technology, and any new patent applications that may arise from this work.

HPQ owns the exclusive worldwide rights to this technology and any improvements that may lead to the filing of new related patents in fields related to the production of silicon from quartz.

However, the company has granted PyroGenesis an exclusive, irrevocable, royalty-free worldwide license to use the process for purposes other than the production of silicon from quartz. If PyroGenesis is approached and or solicited by third parties for research and development projects or for commercial use outside HPQ's Field of Activity, HPQ shall have a right of first refusal, provided, however, that HPQ exercises its right of first refusal within thirty (30) days of receipt by PyroGenesis of a valid offer made in good faith by any such third party.

As part of its IP portfolio strategy to protect the *PUREVAP™ QRR* technologies, HPQ acquired from PyroGenesis on November 10, 2022 (with an effective date of September 30, 2022), a new intellectual property regarding a "*Low Carbon Emission Process for the production of Silicon*". Under the terms of the agreement, the parties are currently finalizing the terms of a complementary agreement surrounding the R&D phases associated with the development of equipment and processes necessary for the application of this IP.

Under the original terms of the agreement, HPQ initially had until June 30, 2023, to pay the purchase price of the intellectual property, which amounted to \$3,600,000. However, an addendum to the original agreement has been agreed to defer cash payment of the balance of \$3,600,000 until December 31, 2023.

#### **THE BATTERIES INITIATIVE AND HIGH VALUE-ADDED SILICON MATERIALS**

The battery initiative is centered around the transformation of silicon produced by *PUREVAP™ QRR* into silicon anode materials suitable for Li-Ion battery applications and all other high value-added silicon-based applications. In parallel, the High Value Silicon Materials initiative aims to provide high-purity silicon (3N – 4N) for high value-added applications based on silicon.

Over the last few years HPQ has signed at least seven (7) NDAs with EV manufacturers, battery makers and other high-value materials companies.

Furthermore, the company is studying the market and technologies currently commercially deployed regarding the addition of silicon materials in batteries and a major trend that is emerging in the lithium battery industry is the introduction of small amounts (between 5% and 10%) of silicon oxide (SiOx) in graphite composite electrodes.

There is an immediate demand, and offer coming principally from China, for micron-size silicon material coming from the battery and advance material sectors, but there is no equivalent offer in North America or Europe, which represents an opportunity for HPQ.

Based on this information, the company is confident that it has a competitive advantage with its RRQ *PUREVAP™* technology. This is why it has entrusted Novacium, its European subsidiary, with the responsibility of developing this initiative with a focus on using commercially available technologies to transform silicon from RRQ into silicon-based anode materials for batteries.

In February 2022, the Company signed a Confidentiality Agreement (NDA) with one of the world's leading High-Performance Materials Manufacturers ("HPMM").

The NDA was also accompanied by a request for supply for micrometric 4N+ silicon powder samples. Micrometre-sized 4N+ silicon powder is the raw material needed to manufacture high value-added silicon materials such as silicon nitride (Si<sub>3</sub>N<sub>4</sub>).

As part of this work on the battery initiative, HPQ also asked Novacium to take the lead in the development of 4N purity micrometric powders for the "HPMM".

## **BATTERIES INITIATIVE AND HIGH VALUE-ADDED SILICON MATERIALS PROGRESS MILESTONES**

During the first half of 2023, Novacium actively worked to identify the characteristics of available Si or SiO<sub>x</sub> materials, with the aim of proposing approaches that would allow HPQ to set up its first production line of silicon-based anode materials for batteries.

Novacium has already undertaken the identification of several techniques and equipment suppliers that have already demonstrated their effectiveness in the market for this task. Testing was conducted in the fourth quarter of 2022 using one technology, at the beginning of the first quarter of 2023 with a second technology provider, and a final test was completed in the first quarter of 2023.

As part of this work on the battery initiative, HPQ has also entrusted Novacium with the responsibility of leading the development of 4N purity micrometric powders for the "HPMM". Following this, the first batches of 4N+ purity silicon micrometric powder samples were delivered to the HPMM from materials prepared by Novacium.

For the period ended June 30, 2023, the Company incurred \$1,386,000 in expenses related to the advancement of the battery's initiatives and High Value-added initiative.

## **BATTERIES INITIATIVE AND HIGH VALUE-ADDED SILICON MATERIALS FUTURE PROGRESS MILESTONES**

One of the goals of the current Phase 1 of the battery initiative is to position itself to supply a silicon-based (Si) anode material that meets the needs of industry buyers by the end of 2023.

In parallel, HPQ plans to commission a first production line capable of manufacturing 200 tons per year of silicon-based anode materials by the end of 2024. In this perspective, Novacium, in collaboration with Dr. Pascal RIVAT Ph.D., will have to identify the technological elements necessary to achieve this objective. They will also need to evaluate capital investments (CAPEX) as well as operational expenses (OPEX) for each process, with the aim of selecting the most appropriate technology for HPQ's production line.

HPQ and Novacium are collaborating with several high-level research centers to study how to improve the performance of silicon-based batteries. In addition, Novacium will conduct tests to determine whether its patented surface treatment processes can improve the performance of materials used in batteries.

The cost of this work for the remainder of fiscal year 2023 is estimated at \$400,000. However, it is important to note that these expenses will be eligible for the research tax credit in France.

## **INTELLECTUAL PROTECTION EMANATING FROM NOVACIUM DRIVEN BATTERIES INITIATIVE**

As of June, 30, 2023, Novacium had not yet filed patent under the driven battery initiative.

### **BATTERIES INITIATIVE – *PUREVAP™* NANO SILICON REACTOR (NSiR)**

The NSiR is a new proprietary process that can use the high-purity silicon (3N to 4N) produced by the *PUREVAP™* QRR and transform it into nano silicon spherical powders and wires. By internally sourcing silicon feedstock materials, HPQ's NSiR should be able to achieve low manufacturing cost while maintaining the flexibility to rapidly adapt the feed material to meet changing End-market requirements.

### **BATTERIES INITIATIVE PROGRESS MILESTONES – *PUREVAP™* NSiR**

The development phases of the technology, which began in August 2020, have had several successes over the years, including:

1. Validation that the system can produce < 150nm nano materials,
2. Validation that the system can reach its design production parameters, and
3. Production of qualified samples.



However, the project also faced challenges regarding the production of compliant samples for battery applications. Although there are potential markets for the materials produced by NSiR the challenge remains in how to remove oxygen from the final nanosilicon product so that it meets the requirements of battery applications.

Solutions to solve the contamination problem are being studied and modelled. However, all these solutions require the manufacture of a brand new RNSi PUREVAP™ reactor in order to validate the concept associated with the chosen solution.

During the first half of 2023, the Company incurred \$83,560 in expenses related to the progress of the RNSi project.

#### **BATTERIES INITIATIVE FUTURE PROGRESS MILESTONES – PUREVAP™ NSiR**

While the proposed solutions are attractive, management believes that in the coming months it will be more important to focus the Company's efforts and budgets on manufacturing silicon-based (Si) materials for anodes.

The estimated cost for this work during the balance of 2023 is around \$30,000.

#### **INTELLECTUAL PROTECTION FOR THE PUREVAP™ NSiR TECHNOLOGIES**

As of the end of fiscal 2022, the company's PUREVAP™ NSiR patent portfolio consisted of one patent acquired from PyroGenesis Canada Inc. by HPQ Nano Silicon Powders Inc (HPQ NANO) (a 100% HPQ owned subsidiary) in 2020.

The patent covers the *"Nano-silicon particles/wire production by arc furnace for rechargeable batteries"*. This patent is still pending in different jurisdictions around the world.

Under the terms of the 2020 patent purchase agreement, HPQ NANO owns the original patent, any proprietary know-how from the development of the technology, and any new patent applications that may arise from this work.

HPQ owns the exclusive worldwide rights to this technology and any improvements that may lead to the filing of new related patents in fields related to the production of nano and micron size silicon powders.

However, the company has granted PyroGenesis an exclusive, irrevocable, royalty-free worldwide license to use the process for purposes other than the production of nano and micron size silicon powders. If PyroGenesis is approached and or solicited by third parties for research and development projects or for commercial use outside HPQ's Field of Activity, HPQ shall have a right of first refusal, provided, however, that HPQ exercises its right of first refusal within thirty (30) days of receipt by PyroGenesis of a valid offer made in good faith by any such third party.

During the first semester of fiscal year 2023, the Company incurred \$14,636 in patent applications expenses related to PUREVAP™ NSiR process in all the jurisdictions where the Company made applications.

#### **FUMED SILICA (SiO<sub>2</sub>) NICHE**

Fumed Silica is a versatile, microscopic white powder with a large surface area and low bulk density. Because of fumed silica's importance in industries like personal care, pharmaceuticals, agriculture (both feed and food), construction (sealants and adhesives), batteries, and automotives, it is material in high demand.

Conventional fumed silica manufacturing processes rely on the use of silicon metal (Si) as a raw material, involving complex steps, high energy consumption, hazardous materials and the production of hydrogen

chloride (HCl) as a by-product. These processes have a carbon footprint of 9.5 tonnes (t) of CO<sub>2</sub> e/t of fumed silica ± 2.5 t of CO<sub>2</sub> e, with more than 60% of these emissions coming from the use of silicon as a feedstock.

### **FUMED SILICA REACTOR**

HPQ Silica Polvere Inc (HPQ POLVERE) (a 100% owned HPQ subsidiary) Fumed Silica Reactor is much simpler than traditional fumed silica production methods.

HPQ POLVERE Fumed Silica Reactor allows a direct Quartz to Fumed silica transformation, removing the usage of hazardous chemical in the making of Fumed silica and eliminating the Hydrogen Chloride Gas (HCl) associated with its manufacturing.

Having a direct transformation of quartz into fumed silica, thus eliminating the need for the conventional carbothermic process to convert quartz into silicon. This innovation has the potential to reduce direct CO<sub>2</sub> emissions associated with the production of fumed silica by more than 60%, equivalent to a reduction of approximately 5 t CO<sub>2</sub> e/t of fumed silica produced.

The plasma-based process relies on exposing quartz feedstock to an electric arc in a manner like that of lightning. The extremely high temperature in the Fumed Silica Reactor vaporizes the quartz, turning it into tiny particles. Then, it can be re-solidified into Fumed Silica powders, perfect for a variety of industrial and commercial applications.

Furthermore, the process requires 15,000 kWh to produce a MT of Fumed Silica, this represents an 86% reduction in the energy footprint associated with manufacturing Fumed Silica. Finally, since the new process uses Quartz as feedstock, its capital requirements will only be a small fraction of what is required to build a traditional Fumed Silica plant.

Engineering and construction of the Fumed Silica Pilot Plant, budgeted at \$2 million, is finance by the following parties:

- The Federal Government of Canada (SDTC) will pay ≈ 33% of the cost,
- The Quebec Government (TED) will pay ≈ 30% of the cost,
- HPQ Silica Polvere Inc (a 100% owned HPQ subsidiary) will pay ≈ 29% of the cost, and
- PyroGenesis Canada Inc will cover the remaining ≈ 8% and act as operator.

### **FUMED SILICA PROGRESS MILESTONES**

The Fumed Silica Reactor Technology R&D development is advancing although at a slower pace than previously divulge in 2021.

As of June 30, 2023, HPQ POLVERE paid its \$336,184 share of the project cost to date regarding the ongoing engineering and design work.

End of May 2023, the project reached its first key milestone with the completion of the engineering tasks related to the design and fabrication of the Pilot Plant.

In addition, PyroGenesis conducted a series of small-scale R&D tests for HPQ POLVERE to validate improved concepts for the pilot plant and produce small sample sizes of fumed silica for evaluation.

The lab test tests showed promising results by successfully demonstrating a capacity to produce Hydrophilic Fumed Silica comparable to commercial-grade materials.

In Q2 2023, we successfully completed several lab-scale tests using raw quartz (SiO<sub>2</sub>) as feedstock to produce Fumed Silica in a one-step process. This achievement utilized our proprietary FSR technology and marked significant progress by reaching the following key milestones:

1. Generated Fumed Silica material exhibiting structural characteristics similar to commercial grade fumed silica, falling between grade Aerosil 150 and Aerosil 200 when compared under Transmission Electron Microscopy (TEM) [1] (see Figure 1 below).
2. Produced nearly one (1) kilogram of Fumed Silica powder, enabling HPQ Polvere to start sending samples to interested third parties for testing.

During the first half of 2023, the Company incurred \$70,700 in expenses related to the progress of the Fumed Silica project.

#### **FUMED SILICA FUTURE PROGRESS MILESTONES**

The goal of the program is like what we are accomplishing with the *Gen3 PUREVAP™ QRR* Pilot Plant, which is building and operating a 50 Tonnes (MT) per year commercial Fumed Silica Reactor pilot plant.

Engineering and construction of the Fumed Silica Pilot Plant is ongoing and will likely finish midway through 2023. Afterwards, validation of the pilot plant technology will commence, alongside assessments of commercial scalability. These tests should be complete towards the middle of 2024 and will set the stage for the development of the commercial Fumed Silica Reactor, afterward.

Under the ongoing contract with PyroGenesis, HPQ Polvere still has one payment of \$284,021 to do in 2024 for the pilot plant project and approximately \$70,000 to be paid for the five tests to be completed.

#### **INTELLECTUAL PROTECTION FOR THE FUMED SILICA REATOR TECHNOLOGIES**

For the period ending March 31, 2023, the company's *Fumed Silica Reactor* patent portfolio consisted of one patent acquired from PyroGenesis Canada Inc. by HPQ Silica Polvere Inc (HPQ POLVERE) (a 100% HPQ owned subsidiary) in 2021.

The patent covers a “*Plasma arc process and apparatus for the production of Fumed Silica*”. This patent is still pending in different jurisdictions around the world.

Under the terms of the 2021 patent purchase agreement, HPQ POLVERE owns the original patent, any proprietary know-how from the development of the technology, and any new patent applications that may arise from this work.

HPQ POLVERE owns the exclusive worldwide rights to this technology and any improvements that may lead to the filing of new related patents in fields related to the production of fumed silica directly from Quartz.

However, the company has granted PyroGenesis an exclusive, irrevocable, royalty-free worldwide license to use the process for purposes other than the production of fumed silica directly from Quartz. If PyroGenesis is approached and or solicited by third parties for research and development projects or for commercial use outside HPQ' POLVERE Field of Activity, HPQ POLVERE shall have a right of first refusal, provided, however, that HPQ POLVERE exercises its right of first refusal within thirty (30) days of receipt by PyroGenesis of a valid offer made in good faith by any such third party.

#### **OTHER NICHES**

Currently, HPQ is working with Novacium regarding the development of processes for making hydrogen via hydrolysis of silicon and other materials.

For the period ended June 30, 2023, the Company incurred \$75,000 in expenses related to the Hydrogen projects.

#### **NEW TECHNOLOGIES INTELLECTUAL PROTECTION**

During the first half of 2023, no new patents resulting from the collaboration with Novacium SAS had been registered yet, but the company has incurred \$54,384 related to related expenses for patents held by Novacium SAS.

The cost of this work for the remainder of fiscal year 2023 is estimated at \$300,000. However, it is important to note that these expenses will be eligible for the research tax credit in France.

## RESEARCH AND DEVELOPMENT EXPENSE

The following table represents the research and development expenses for the quarter and period ending June 30, 2023, compared to the corresponding period of 2022.

|                           | QUARTER |           | Project     |               |              |           |
|---------------------------|---------|-----------|-------------|---------------|--------------|-----------|
|                           | 2022    | 2023      | PUREVAP QRR | NSRSi PUREVAP | FUMED SILICA | Other     |
| Beginning balance April 1 | 0       | 3,451,946 | 2,197,866   | 8,105         | 522,579      | 723,396   |
| Add:                      |         |           |             |               |              |           |
| Salary                    | 0       | 161,521   | 0           | 9,455         | 0            | 152,066   |
| Consultant                | 0       | 428,091   | 286,540     | 42,108        | 59,885       | 39,558    |
| Supply for testing        | 0       | 441,167   | 406,460     | 23,892        | 10,815       | 0         |
| Material                  | 0       | 85,167    | 0           | 0             | 0            | 85,167    |
| Travel expenses           | 0       | 24,998    | 0           | 0             | 0            | 24,998    |
|                           | 0       | 1,140,944 | 693,000     | 75,455        | 70,700       | 301,789   |
| Investment tax credits    | 0       | 0         | 0           | 0             | 0            | 0         |
| Total the quarter:        | 0       | 1,140,944 | 693,000     | 75,455        | 70,700       | 301,789   |
| Cumulative                | 0       | 4,592,890 | 2,890,866   | 83,560        | 593,279      | 1,025,185 |

|                             | PERIOD |           | Project     |               |              |           |
|-----------------------------|--------|-----------|-------------|---------------|--------------|-----------|
|                             | 2022   | 2023      | PUREVAP QRR | NSRSi PUREVAP | FUMED SILICA | Other     |
| Beginning balance January 1 | 0      | 2,406,957 | 1,504,866   | 0             | 522,579      | 379,512   |
| Add:                        |        |           |             |               |              |           |
| Salary                      | 0      | 376,999   | 0           | 17,560        | 0            | 359,439   |
| Consultant                  | 0      | 841,999   | 601,540     | 42,108        | 59,885       | 138,466   |
| Supply for testing          | 0      | 819,167   | 784,460     | 23,892        | 10,815       | 0         |
| Material                    | 0      | 104,697   | 0           | 0             | 0            | 104,697   |
| Travel expenses             | 0      | 43,071    | 0           | 0             | 0            | 43,071    |
|                             | 0      | 2,185,933 | 1,386,000   | 83,560        | 70,700       | 645,673   |
| Investment tax credits      | 0      | 0         | 0           | 0             | 0            | 0         |
| Total the period:           | 0      | 2,185,933 | 1,386,000   | 83,560        | 70,700       | 645,673   |
| Cumulative                  | 0      | 4,592,890 | 2,890,866   | 83,560        | 593,279      | 1,025,185 |

#### **RECENT CORPORATE DEVELOPMENT OVERALL PERFORMANCE**

- At the end of June 2023, HPQ announced the potential of QRR technology to produce zero-carbon silicon.
- In early June 2023, HPQ announced that the QRR pilot plant had produced 3N+ purity silicon.
- End of May 2023, HPQ announces the signing of a non-disclosure agreement with a major manufacturer of Fumed Silica.
- May 2023, HPQ announces that the Fumed Silica project has reached its first key milestone.
- At the end of April 2023, HPQ announced the delivery of a first batch of samples of 4N+ purity silicon micrometric powder to a potential customer.
- March 2023, HPQ announces that the QRR pilot plant is operated in semi-continuous batch mode and that it has produced silicon materials with a purity greater than 99.5% during the first three (3) tests.
- In February 2023, the Company announces its intention to build a production line for silicon-based battery materials in North America ("NA").
- January 2023, the test program of the PUREVAP™ QRR pilot plant reached the halfway mark.

#### **FINANCING AND OTHER**

- During the second quarter of 2023, the Company issued 11,194,600 common shares following the exercise of 11,194,600 warrants for a total amount of \$1,119,460.
- During the second quarter of 2023, the Company settled a trade account payable of \$49,680 by the issuance of 216,000 units. Each unit consists of one common share and one warrant. Each warrant entitles the holder thereof to acquire one common share of the Company at a price of \$0.27 per share for 24 months following the closing date of the transaction.
- During the first quarter of 2023, the Company issued 1,500,000 common shares following the exercise of 1,500,000 warrants for a total amount of \$150,000.
- During the first quarter of 2023, the Company settled a trade account payable of \$44,100 by the issuance of 180,000 units. Each unit consists of one common share and one warrant. Each warrant entitles the holder thereof to acquire one common share of the Company at a price of \$0.32 per share for 24 months following the closing date of the transaction.
- As at June 30, 2023, the Company had \$1,234,998 in cash, marketable securities of \$1,694,950, goods and services tax receivable of \$275,274, investment tax credits receivable of \$165,412 and \$189,592 in prepaid expenses and others.

## SELECTED FINANCIAL INFORMATION

### The second quarter of 2023

The Net Loss increase of \$1,256,873 \$ (78%) (\$2,865,856 \$ vs 1,608,983) compared to the 2022 period corresponds to the increase in operating expenses of \$985,447 \$ (71%) (\$2,370,370 vs \$1,384,923). During the last seven quarters, their respective averages were \$2,373,265 and \$2,043,182.

The following table presents the selected financial information for the last eight quarters.

|                                    | Fiscal 2023 |            | Fiscal 2022 |            |            |            | Fiscal 2021 |            |
|------------------------------------|-------------|------------|-------------|------------|------------|------------|-------------|------------|
| Quarter finishing on:              | 06/30       | 03/31      | 12/31       | 09/30      | 06/30      | 03/31      | 12/31       | 09/30      |
|                                    | \$          | \$         | \$          | \$         | \$         | \$         | \$          | \$         |
| Operating                          | 2,370,370   | 2,048,020  | 4,828,150   | 1,391,926  | 1,384,923  | 614,465    | 4,727,680   | 307,110    |
| Net Loss (income)                  | 2,865,856   | 1,658,030  | 4,930,577   | 1,799,874  | 1,608,983  | 744,701    | 5,158,711   | 684,978    |
| Loss per share (basic and diluted) | 0.00        | 0.00       | 0.02        | 0.00       | 0.01       | 0.00       | 0.02        | 0.00       |
| Current Assets                     | 3,560,226   | 4,694,228  | 5,551,793   | 6,630,118  | 7,887,741  | 4,942,189  | 4,410,906   | 5,287,309  |
| Total Assets                       | 18,612,872  | 20,335,290 | 21,612,239  | 26,832,812 | 24,175,110 | 21,814,780 | 21,722,779  | 23,963,454 |
| Current Liabilities                | 4,403,695   | 4,524,567  | 4,435,269   | 3,740,180  | 732,813    | 627,399    | 601,340     | 675,850    |
| Non-Current Liabilities            | 2,821,545   | 2,734,415  | 2,658,300   | 3,073,818  | 2,962,525  | 2,884,277  | 2,789,194   | 2,763,765  |
| Shareholders' Equity               | 11,387,632  | 13,076,308 | 14,518,670  | 19,018,814 | 20,479,772 | 18,303,104 | 18,332,245  | 20,523,839 |

### Financial period of 2023

During the period ending June 30, 2023, the Company saw an increase in its Net Loss of \$2,170,202 (92%) (\$4,523,886 vs \$2,353,684), while operating costs increased of \$2,419,002 (121%) (\$4,418,390 vs \$1,999,388) and the increase in other income and expenses of \$248,800 (\$-105,496 \$ vs \$-354,296 \$), during the last three previous periods these costs averaged respectively at \$1,054,787 and \$1,084,176.

The following table presents financial information for the periods 2020 at 2023.

|                                       | FISCAL 2023 | FISCAL 2022 | FISCAL 2021 | FISCAL 2020 |
|---------------------------------------|-------------|-------------|-------------|-------------|
|                                       | 30/06/23    | 30/06/22    | 30/06/21    | 30/06/20    |
|                                       | \$          | \$          | \$          | \$          |
| Operating expenses                    | 4,418,390   | 1,999,388   | 759,904     | 493,235     |
| Net loss                              | 4,523,886   | 2,353,684   | 487,577     | 323,101     |
| Results per share (basic and diluted) | (0.00)      | (0.01)      | (0.00)      | (0.00)      |
| Current Assets                        | 3,560,226   | 7,887,741   | 9,647,128   | 979,999     |
| Total Assets                          | 18,612,872  | 24,175,110  | 27,949,094  | 12,028,083  |
| Current Liabilities                   | 4,403,695   | 732,813     | 4,400,230   | 903,558     |
| Non-current Liabilities               | 2,821,545   | 2,962,525   | 2,964,047   | 3,825,355   |
| Shareholders' Equity                  | 11,387,632  | 20,479,772  | 20,584,817  | 7,299,170   |

### GENERAL DISCUSSION OF FINANCIAL INFORMATION FOR THE FIRST QUARTER AND PERIOD OF 2023

#### Analysis of comprehensive income

Compared to the corresponding quarter of 2022, the Company saw an increase the Net loss of \$1,256,873 (78%) (\$2,865,856 vs \$1,608,983) which corresponds to the increase in operating costs of \$985,447 (71 %) (\$2,370,370 vs \$1,384,923) and the decrease in other income and expenses of \$271,426 (-\$495,486 vs. -\$224,060). While for the period ending June 30, 2023 compared to the corresponding period of 2022, the Company saw an increase in its overall losses of \$2,170,202 (92%) (\$4,523,886 vs. \$2,353,684). This is due to the increase in operating costs of \$2,419,002 (121%) (\$4,418,390 versus \$1,999,388) and the increase in other income and expenses of \$248,800 (-\$105,496 vs - \$354,296).



**Analysis of the operating costs**

The following table presents the major changes in certain components of comprehensive income compared to the 2022 period for the operating costs of the second quarter and the period ending June 30, 2023 .

|   | QUARTER   |         | Increase<br>/(Decrease) |
|---|-----------|---------|-------------------------|
|   | 2023      | 2022    |                         |
| Other operating expenses                          |           |         |                         |
| Professional Fee and Consultant                   |           |         |                         |
| - Legal fees                                      | 120,565   | 210,611 | (90,046)                |
| - Accounting professional fees                    | 49,436    | 75,480  | (26,044)                |
| - Business development consultant                 | 48,921    | 17,978  | 30,943                  |
| Office expenses                                   | 51,535    | 32,679  | 18,856                  |
| Traveling expenses                                | 38,357    | 13,937  | 24,420                  |
| Information to shareholders and registration fees | 39,441    | 57,170  | (17,729)                |
| Amortization of property and equipment            | 475,636   | 627,111 | (151,475)               |
| Amortization of intangible assets                 | 176,807   | 140,259 | 36,548                  |
| Research and development costs                    | 1,140,944 | -       | 1,140,944               |

|   | PERIOD    |         | Increase<br>/(Decrease) |
|---|-----------|---------|-------------------------|
|   | 2023      | 2022    |                         |
| Other operating expenses                          |           |         |                         |
| Professional Fee and Consultant                   |           |         |                         |
| - Legal fees                                      | 146,389   | 254,556 | (108,167)               |
| - Accounting professional fees                    | 89,127    | 105,440 | (16,313)                |
| - Business development consultant                 | 149,080   | 93,184  | 55,896                  |
| Office expenses                                   | 81,910    | 44,060  | 37,850                  |
| Traveling expenses                                | 42,211    | 13,937  | 28,274                  |
| Information to shareholders and registration fees | 57,395    | 82,261  | (24,866)                |
| Amortization of property and equipment            | 951,855   | 783,111 | 1,568,157               |
| Amortization of intangible assets                 | 350,618   | 277,748 | 377,002                 |
| Research and development costs                    | 2,185,933 | -       | 2,185,933               |

### **Amortization of property assets and intangible assets**

The company amortized tangible and intangible assets since the beginning of the 2022 financial year.

### **Research and development costs**

For the second quarter and period of 2023, there are research and development expenses of \$1,140,944 which is distributed for \$693,000 for tests on the Purevap RRQ, \$75,455 for tests and salaries on the Purevap NSiR project, \$70,700 for tests on fumed silica and \$307,789 for other projects under development by our subsidiary Novacium.

For the period ending of June 30, 2023, there are research and development expenses of \$2,185,933 which is distributed for \$1,386,000 for tests on the Purevap RRQ, \$83,560 for tests and salaries on the Purevap NSiR project, \$70,700 for tests on fumed silica and \$645,673 for other projects under development by our subsidiary Novacium.

### **Other operating expenses**

#### **Professional Fees**

For the second quarter and period of 2023 compared to 2022, there is a decrease in legal fees of \$90,046 which is related to the file of the change of activity in 2022 and also the shares-based payments of \$164,721 in 2022, a decrease in accounting and audit fees of \$26,044 and also fees for business development consultants of \$30,943 which is attributable to our subsidiary Novacium.

For the period of 2023, there is a decrease in legal fees of \$108,167 which is due to the shares-based payments of \$164,721 in 2022 and the difference of \$56,554 comes mainly from our subsidiary Novacium. The decrease in accounting and audit fees of \$16,313 is attributable to the change in activity in 2022. The increase in fees for business development consultants of \$55,896 is attributable to our subsidiary Novacium.

#### **Office expenses**

The increase in office expenses of \$18,856 for the second quarter of 2023 compared to 2022 is mainly related to insurance costs on our test equipment of approximately \$12,000 as well as the costs of our subsidiary Novacium for the difference.

The increase in office expenses of \$37,850 for the period of 2023 compared to 2022 is mainly related to insurance costs on our test equipment of approximately \$24,000 as well as the costs of our subsidiary Novacium for the difference.

#### **Traveling expenses**

The increase in traveling expenses of \$24,420 for the second quarter of 2023 compared to 2022 is mainly related to traveling to Europe for business development as well as the expenses of our subsidiary Novacium for the difference.

The increase in traveling expenses of \$28,274 for the period of 2023 compared to 2022 is mainly related to traveling to Europe for business development as well as the expenses of our subsidiary Novacium for the difference.

**Information to shareholders and registration fees**

The decrease of \$17,729 is related to fees on the TSX Venture Exchange as well as the decrease in our press releases for the second quarter of 2023.

The decrease of \$24,866 is related to fees on the TSX Venture Exchange as well as the decrease in our press releases for the period of 2023.

**Analysis of Other Income (Expenses)**

The following tables represent the major changes in certain components of other income/(expenses) compared to 2022 for the quarter and the period ending June 30, 2023.

| Financial income (loss) | QUARTER   |          | Increase<br>/(Decrease) |
|-------------------------|-----------|----------|-------------------------|
|                         | 2023      | 2022     |                         |
|                         | (374,535) | (98,816) | (275,719)               |

|  | PERIOD                  |         | Increase<br>/(Decrease) |
|--|-------------------------|---------|-------------------------|
|  | 2023                    | 2022    |                         |
|  | Financial income (loss) | 140,682 | (127,850)               |

**Finance income**

Financial income fluctuates mainly due to the fair value adjustment of our marketable securities.

**FINANCIAL SITUATION****Financial Position**

As at March 31, 2023, the Company had a working capital of \$169,661 (\$1,116,524 as of December 31, 2022). Total Current assets are \$4,694,228 (\$5,551,793 as of December 31, 2022) and current liabilities are \$4,524,567 (\$4,435,269 as of December 31, 2022).

### **Current assets**

Current assets consist of the following:

- Cash of \$1,234,998 (\$1,143,902 as at December 31, 2022).
- Marketable securities of \$1,694,950 (\$710,403 as at December 31, 2022). It represents the fair market value of the shares of PyroGenesis as well as those of Québec Innovative Materials Corp. (formerly Québec Silica Inc).
- Goods and services taxes receivable of \$275,274 (\$1,047,106 as of December 31, 2022). This amount represents our last quarter.
- A \$165,412 investment tax credit receivable (\$207,101 as at December 31, 2022).
- The contract deposit of NIL (\$1,286,000 as of December 31, 2022).
- Prepaid expenses and other of \$189,592 (\$267,281 as of December 31, 2022). This amount represents directors' and officers' insurance and equipment, annual fees for OTC Markets and the TSX Venture Exchange.

### **Non-current assets**

During the period ending June 30, 2023, the Corporation acquired patents for \$299,748 (\$14,636 for Purevap™ NSiR and \$285,112 for Purevap™ QRR).

### **Current liabilities**

Consist of the following:

- Trade and other payable of \$3,849,831 (\$3,969,320 as of December 31, 2022) which includes an amount of \$3,472,612 to a subcontractor.
- Due to Directors of \$166,500 (\$100,000 as at December 31, 2022).
- Royalties payable of \$377,106 (\$354,578 as of December 31, 2022)

### **Non-current liabilities**

Non-current liabilities totalling \$2,821,545 (\$2,658,300 as of December 31, 2022) representing due to directors, officers and a corporation owned by a director for \$805,539 (\$796,891 par value) (\$827,052 as of December 31, 2022 with a par value of \$835,391), a lease liabilities of \$13,043 (\$16,997 as at December 31, 2022) and royalties payable of \$2,002,963 (\$1,814,252 as of December 31, 2022).

### **Equity**

During the period ending June 30, 2023, the Company issued 12,694,600 shares. This corresponds the exercise of 12,694,600 warrants for an amount of \$1,269,460. There was an issuance of 396,000 units for the settlement of accounts payable for the value of \$124,096.

### **Working capital**

As at June 30, 2023, the Company had a cash flow of \$1,234,998 (\$6,501,811 for 2022).

### **Operating activities**

Cash flow from operating activities of \$79,577 consists of a Net Loss of \$5,523,886 and non-cash items that have no cash flow impact of the cash flow of \$1,521,675. The sources the cash flows from working capital operating activities represents an amount of \$3,081,788 which comes from the decrease in HST receivable of \$771,832, a decrease in prepaid expenses and others of \$90,189, a decrease of \$1,286,000 in deposit on contract, a decrease of installments to a subcontractor of \$890,000 as well as an increase in trade and other payables of \$43,767.

### **Investment activity**

The use of cash flow for investing activities of \$1,201,827, consists of additions to property and equipment of \$1,165, additions an intangible asset of \$342,351, acquisition of investments in a subcontractor of \$900,000 and a tax credit received of \$41,689.

### **Financing activity**

Cash flow from financing activity in the amount of \$1,213,804 includes the exercise of warrants for \$1,269,460, the repayment of amounts due to directors of \$50,000 and repayment of lease liabilities of \$5,656. The Company increased its cash flow by \$91,554 during the period.

The Company's average cash requirements for future intermediaries are expected to be between \$300,000 and \$350,000 excluding research and development expenses and additions for property, plant and equipment and intangible assets.

As the Company is still in its development phase and focused on innovating silicon solutions and related technology, the Company will likely continue to operate at a loss until the technology can be commercialized, and the Company will require additional funding to fund future operations and expansion plans. The Company does not expect to generate revenue from product sales until it successfully completes the development of its silicon solutions, which may take a number of years and is subject to significant uncertainty. Until it can generate significant revenues from product sales, if ever, the Company expects to finance its operations through a combination of public or private capital or debt or other sources.

The Company currently has no committed sources of financing available. While the Company has been successful in securing financing in the past, raising additional funds is dependent on a number of factors outside the Company's control, and as such there is no assurance that it will be able to do so in the future. The ability of the Company to meet its commitments and discharge its liabilities as they become due and become profitable is dependent on the successful completion of the development of its technology and its commercial production, its ability to raise additional funding to finance these activities and the continued financial support of shareholders and lenders.

The conditions mentioned above indicate the existence of a material uncertainty that may cast a significant doubt as to the Company's ability to continue as a going concern.

The carrying amounts of assets, liabilities, revenues and expenses presented in the consolidated financial statements and the classification used in the statement of financial position have not been adjusted as would be required if the going concern assumption was not appropriate. Those adjustments could be material.

## FINANCIAL COMMITMENTS, CONTINGENCIES AND SUBSEQUENT EVENTS

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The Company entered into agreements with subscribers whereby the Company had to incur \$1,245,000 of Canadian Exploration Expenses ("CEE") before December 31, 2017. The Company had incurred \$919,296 in CEE before December 31, 2017 and an approximate balance of \$293,000 of CEE renounced to the investors was not been incurred as at December 31, 2017, and was used for other purposes than exploration expenses. The maximal contingency for the Company, in relation to non-compliance with its obligations with subscribers, is approximately \$220,000. As at February 28, 2018, the Company had produced the reductions forms related to the amount of \$293,000 in CEE renounced to the investors and that have not been incurred as at December 31, 2017. As at June 30, 2023, an amount of \$17,321 pertaining to part XII.6 taxes is included in trade accounts payable.

On September 28, 2015, the Corporation concluded a Development and Exclusivity Agreement with PyroGenesis. In return for the Exclusive Right to use the PyroGenesis-developed technology, it must make the following payments:

- 2023 and after, the highest between 10% of Si sales or \$250,000.

On August 18, 2020, the Company acquired with PyroGenesis the PUREVAP™ NSiR technology for the fabrication of nano silicon materials. Pursuant to the purchase agreement, the Company is committed to paying to the seller the greater of an annual royalty equal to 10% of net revenues (as defined in the agreement) generated from the exploitation of the acquired technology or the minimum amounts per the agreement. Also, the seller is being granted the right to convert, at any time and at its sole discretion, its royalties into a 50% equity stake of HPQ Nano.

- 2023, 10% of nano silicon materials sales or \$150,000.
- 2022 and after, 10% of nano silicon materials sales or \$200,000.

On June 30, 2021, the Company acquired technology for the production of fumed silica materials. Pursuant to the purchase agreement, the Company is committed to pay to the seller the greater of an annual royalty equal to 10% of net revenues, excluding the samples (as defined in the agreement) generated from the exploitation of the acquired technology or the minimum amounts per the agreement. Also, the seller is being granted the right to convert, at any time and at its sole discretion, its royalties into a 50% equity stake of HPQ Polvere.

- 2023, 10% of Fumed Silica materials sales or \$50,000;
- 2024, 10% of Fumed Silica materials sales or \$100,000;
- 2025, 10% of Fumed Silica materials sales or \$150,000;
- 2026 and after, 10% of Fumed Silica materials sales or \$200,000.

As at June 30, 2023, the remaining total commitment for the purchase of the Pilot Plant Equipment was approximately \$284,021 for the fumed silica project.

## **CRITICAL ACCOUNTING POLICIES**

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The preparation of annual financial statements under IFRS requires that management use its judgment makes assumptions and estimates and use hypotheses that influence the application of accounting methods, as well as having an effect on the book value of assets, liabilities, revenues and expenses. The final results could differ from these estimates.

The estimates and hypotheses are regularly reviewed. Any revision of accounting estimates is indicated during the period when the estimates are revised as well as any future periods affected by said revisions.

Information on the hypotheses and estimation uncertainties that present an important risk of creating a significant adjustment during the course of the next financial period are as follows:

- Internally generated intangible assets;
- Evaluation of Income Tax Credits receivable;
- Present value of royalties payable.

Management believes that the majority of the changes will be adopted in the Company accounting methods during the first period starting after the effective date of each new change. The information on the new standards and interpretations as well as the new amendments, which are susceptible to be pertinent to the Corporation's consolidated financial statements, are supplied below.

## **FUTURE ACCOUNTING POLICIES**

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At the date of these consolidated financial statements, certain new standards, amendments, and interpretations to existing standards have been published but are not yet effective and have not been adopted early by the Company.

Management anticipates that all of the relevant pronouncements will be adopted in the Company's accounting policies for the first period beginning after the effective date of the pronouncement. Certain new standards and interpretations have been issued but are not expected to have a material impact on the Company's consolidated financial statements.

### ***IAS 1, Disclosure of Accounting Policies***

In February 2021, the IASB issued amendments to IAS 1 to require entities to disclose its material accounting policies instead of its significant accounting policies.

This amendment is applicable to the Company beginning January 1, 2023. The adoption of this amendment is not expected to have a significant impact on the Company's financial statements.

### ***IAS 8, Definition of Accounting Estimates***

In February 2021, the IASB issued amendments to IAS 8 to replace the definition of a change in accounting estimate. Under the new definition, accounting estimates are "monetary amounts in financial statements that are subject to measurement uncertainty".

This amendment is applicable to the Company beginning January 1, 2023. The adoption of this amendment is not expected to have a significant impact on the Company's financial statements.

### ***IAS 12, Deferred Tax Related to Assets and Liabilities Arising From a Single Transaction***

In May 2021, the IASB issued amendments to IAS 12 to require entities to recognize deferred tax on transactions that, on initial recognition, give rise to equal amounts of taxable and temporary deductible

differences.

This amendment is applicable to the Company beginning January 1, 2023. The adoption of this amendment is not expected to have a significant impact on the Company's financial statements.

## **DISCLOSURE CONTROLS AND PROCEDURES AND INTERNAL CONTROLS OVER FINANCIAL REPORTING**

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As the Corporation is an emerging issuer, management does not need to attest to the establishment and maintenance of Disclosure Controls and Procedures and internal controls relating to financial information as defined under Regulation 52-109.

The Signing Officers of the Issuer are responsible for ensuring that there are processes in place allowing them to gather sufficient information for the statements made in the Certificates.

## **FINANCIAL INSTRUMENTS**

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Financial Assets used by the Corporation consist of: cash, note receivable, royalties' receivable and the deposit on contract are part of the loans and receivables category.

The financial liabilities of the Corporation include trade and other payables (excluding salaries and personnel-related expenses), the amounts Due to Directors, the amounts due to Directors, Officers and to a corporation held by a director (excluding salaries and Personnel expenses) and royalties payable.

The fair value of royalties' receivables; of due to Directors, Officers and corporations controlled by a director or Officer and the Royalties payable are estimated using an analysis of the discounted cash flows using an interest rate for similar instruments. The fair value of royalties' payable approximates the carrying amount at the end of the period, while the fair value of the due to directors, officers and a corporation held by a director is \$805,539.

The fair value of the marketable securities of a quoted company was estimated based on the market price at the balance sheet date. Marketable securities of a quoted company measured at fair value in the consolidated statements of cash flows as at June 30, 2023.

## **INFORMATION ON SHARE CAPITAL**

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### **Information on financings**

On June 30, 2023, the Corporation had 365,089,770 shares issued and outstanding (351,998,770 as at December 31, 2022), 11,196,000 warrants (23,494,600 as at December 31, 2022) and 16,485,000 Options (16,485,000 as at December 31, 2022). The number of shares on a diluted basis is 392,770,370.

### **Information on outstanding shares**

As at August 29, 2023, the Corporation had 365,089,370 shares issued and outstanding, 11,196,000 warrants and 16,485,000 options. The number of fully diluted shares is 392,770,370. The Corporation's share capital consists of an unlimited number of common shares with No Par Value.



## RELATED PARTY TRANSACTIONS

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For the period ending on June 30, 2023, the sum of \$187,500 (\$324,125 on December 31, 2022) was accounted for as management fees under a contract between the Corporation and a corporation controlled by the Chairman of the Board as part of a consulting agreement with the Corporation.

These activities are part of the normal course of business for the Corporation and are established based on their exchange value as agreed to by the parties.

Accounts payable and other payables include Nil due to officers and a corporation held by a director (\$52,716 as at December 31, 2022).

The Corporation owes to Directors and Officers salaries and remuneration with a nominal value of \$963,391. The Corporation has obtained confirmation that payment of an amount of \$796,891, under certain conditions, will not be demanded for a minimum of 12 months and one day after June 30, 2023.

## RISK FACTORS

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### Uncertainties about process technology on a commercial basis

The Company's *PUREVAP™ QRR* silicon manufacturing process, the Purevap NSiR silicon nanomaterial transformation process and the Company's fumed silica manufacturing process have not been used commercially by the Company and there can be no assurance that the results obtained in small-scale tests can be replicated in commercial quantities, which could have a material adverse impact on the Corporation's projects. The Company will be required to supply silicon that meets certain specifications. In addition, the Corporation expects the *PUREVAP™ QRR* pilot plant to be commissioned by the end of Q1 2022. The Company's inability to fully commission and produce silicon that meets industry specifications could have a material adverse effect on the Company.

The Company's development of its silicon manufacturing, silicon nanomaterial manufacturing and fumed silica manufacturing processes can be complicated by intellectual property rights held by third parties (also known as freedom-to-operate issues), due to the nature of patents authorized by national patent offices. The Company may be forced to adapt its technology in order to ensure that it does not conflict with intellectual property rights held by third parties. In addition, the Company's ability to successfully challenge the patent rights of third parties depends on national laws and courts, and there can be no assurance that the Company would be able to successfully challenge the patent rights of third parties. In addition, the Company may face increasing competition from technology similar to its own in the future. Such similar technology may pose a threat to the Company and could prevent it from conducting business operations on an economically viable basis.

### Increased production costs

Changes in the Company's cost of production could have a material impact on its financial condition and results of operations. Changes in the costs of the Company's manufacturing operations could occur as a result of unforeseen events, including international and local economic and political events, changes in commodity prices, increased costs and labour shortages could result in changes in profitability. Many of these factors may be beyond the Company's control. The Corporation prepares estimates of cash and future capital costs for its operations and projects. There can be no assurance that actual costs will not exceed such estimates. Exceeding cost estimates could adversely affect the Company's results of operations or future financial condition.

**Dependence on technology**

HPQ will leverage continuous improvement of technology to meet customer demands for performance and cost and to explore other business opportunities. There can be no assurance that the Corporation will succeed in its efforts in this regard or that it will have the resources to meet this demand. Although management anticipates that research and development will enable the Company to explore other business opportunities, there can be no assurance that such business opportunities will be present or realized. The Company's business advantage will depend to a large extent on HPQ's proprietary intellectual property and technology and the Company's ability to prevent others from copying such proprietary technologies.

HPQ currently relies on intellectual property rights and other contractual or proprietary rights, including (without limitation) copyrights, trade secrets, confidential procedures, contractual provisions, licenses and patents, to protect its proprietary technology. HPQ may need to engage in litigation to protect its patents or other intellectual property rights, or to determine the validity or scope of others' proprietary rights. This type of litigation can be costly and time-consuming, whether the Company is successful or not. HPQ may apply for patents or other similar protections with respect to a particular technology. However, there can be no assurance that any future patent application will actually result in the grant of patents or that, even if patents are granted, they will be of sufficient scope or strength to provide significant protection or commercial advantage to the Company.

In addition, the process of seeking patent protection itself can be lengthy and costly. In the meantime, competitors may develop technologies similar to or superior to HPQ's technology or design from patents held by the Company, thereby negatively affecting the Company's competitive advantage in one or more of its business areas. Despite the Company's efforts, its intellectual property rights may be invalidated, circumvented, challenged, infringed or licensed to third parties. There can be no assurance that the measures the Company may take to protect its intellectual property rights and other rights in these proprietary technologies that are at the heart of the Company's operations will prevent the misappropriation or infringement of its technology.

**Infrastructure, supply and inflation**

As the company needs to procure the raw materials required for the proper functioning of the RRQ Purevap silicon manufacturing operations, the NSiR Purevap silicon nanomaterial transformation process and the fumed silica manufacturing process, their prices and the price of goods and services will fluctuate depending on the level of investment in the sector. As a result, it is reasonable to expect that increased demand could affect the Corporation's economic projections and future competitiveness, which may result in a significant increase in the cost of various products and services. Improved economic conditions across the technology sector will typically increase the costs of both planned exploration and development activities, which must also be integrated into the economic models used for projections of future development and potential activities. Increased demand for and costs of goods or services could result in delays if they cannot be obtained in a timely manner due to insufficient supply and could cause difficulties with schedule and timelines due to the need to coordinate their availability, which could have a significant impact on research and development and/or construction costs of production plants. These factors could have a material adverse impact on the Company's profitability and operations.

**Risks associated with the future sale of products.**

The Company is dependent on its future sales of products. Even though the Company has made efforts to date to enter into sales agreements, including offtake agreements, for future sales, there can be no assurance that the Company will be able to sell products on terms and conditions that are sufficiently favourable or necessary to ensure the continuity of its operations.

No warranty can be given that the Company will be able to enter into sales agreements, including offtake agreements, with respect to future sales, and, if applicable, no warranty can be given with respect to the amounts of purchase orders or commitments, the quantity of Silicon represented by such purchase orders and the commitments or the time of their receipt. Factors that may affect orders and commitments include the Company's ability to reliably and consistently produce silicon products in accordance with customer requirements and customer confidence in such capacity, market conditions, demand for products that require Silicon general market conditions and the strength of the economy.

If, for any reason, the Company is unable to produce the Products in accordance with the terms and specifications set forth in any Sales Agreement, such failure or breach of the Agreements, which would effectively result in the termination of the Agreements or the payment of damages, could adversely affect the Company's operations and financial condition. Even if the Company was able to comply with the requirements set out in each of the sales agreements, there can be no assurance that the third parties to the agreements would accept or be able to purchase the production at the prices and quantities set out in the relevant offtake agreement with the Corporation.

#### **Uncertainty in future production estimates**

The Company prepares internal estimates and projections for the future production of materials produced with the *PUREVAP™ QRR* Silicon manufacturing process, the Purevap NSiR Silicon Nanomaterials transformation process and the fumed silica manufacturing process. This information is forward-looking and no assurance can be given that any such estimates will be realized. These estimates are based on existing plans and other assumptions that change from time to time, including: mineral reserve and mineral resource estimates; the availability, accessibility, sufficiency and quality of Silicon; the Company's production costs; the Company's ability to maintain and increase production levels; the adequacy of the Corporation's infrastructure; the performance of the Corporation's workforce and equipment; the Corporation's ability to maintain and obtain mineral interests and permits and the Company's compliance with existing and future laws and regulations. The Company's actual production may differ from estimates for a variety of reasons, including: raw material purchase prices; natural phenomena, such as adverse weather conditions, water availability, flooding and seismic activity; and unexpected labour shortages, strikes, opposition or blockades from local communities where manufacturing units could be located. Failure to meet the estimated guidance could adversely affect the Company's cash flows, revenues, results of operations and future financial position.

#### **No income and loss history**

Since the Corporation does not generate revenue, it is dependent on future financing to continue its operations or even remain in business. The Company has not generated any revenue since its incorporation. The development of the *PUREVAP™ QRR* silicon manufacturing process, the *PUREVAP™ NSiR* silicon nanomaterial transformation process and the fumed silica manufacturing process are among the Company's business objectives. There is no guarantee that these projects will be commercially viable.

In addition, the Company has no history of profitable operations and there can be no assurance that the Company will ever be profitable. Exceeding cost estimates could adversely affect the Company's results of operations or future financial condition. It incurred net losses in the fiscal years ended December 31, 2020, 2021 and 2022. The Company's management does not anticipate any revenue for future fiscal years and believes that the Company may incur ongoing losses in the near future. There is no guarantee that it will reach a stage of profitability in the short term or at all.

The Corporation's future success will depend in large part on its ability to meet its contractual commitments, which are operationally and financially significant. In general, the Company's revenues will also be influenced by economic conditions and its ability to begin production and to manage its growth.

### **Negative operating cash flow**

The Company has no history of revenues from its operating activities. The Company's cash and cash equivalents were representing approximately \$1,234,998 and \$1,143,902 respectively as of June 30, 2023 and December 31, 2022. During the period ended June 30, 2023 and December 31, 2022, the Company recorded negative cash flow from its operating activities of \$79,577 and \$4,879,224, respectively. For the period ended March 30, 2023, the Company had a current liability of \$4,403,567. For the period ended June 30, 2023, the Company had an average monthly cash expense rate of approximately \$514,000 per month, including additions to fixed assets, tangible property, facilities and equipment, intangible assets and deposits with suppliers, and any operating expenses and capitalized development costs not covered by grants. The Company expects to maintain negative cash flows from its operating activities in future periods, at least until commercial production begins and profitability is achieved through the production of materials produced with the *PUREVAP™ QRR* Silicon manufacturing process, the *PUREVAP™ NSiR* Purevap silicon nanomaterial transformation process and the fumed silica manufacturing process. To the extent that the Company has negative cash flows in future periods, the Company may need to allocate a portion of its existing working capital to fund such negative cash flows.

### **Capital requirements**

The development of the *PUREVAP™ QRR* silicon manufacturing process, the Silicon to silicon nanomaterials *PUREVAP™ NSiR* process and the fumed silica manufacturing process will require significant additional funding. The only sources of funds available to the company are the issuance of additional share capital and borrowing. There is no assurance that such funding will be available, on favorable terms or sufficient to meet needs, which could have a negative impact on the business and its financial position. Failure to obtain sufficient funding can result in delays or even indefinite postponement of technology development work and even loss of ownership in new technologies.

### **Environmental regulations and requirements**

The company's activities require permits from various government authorities and are governed by laws and regulations on production, exports, taxes, labour standards and occupational safety, as well as the environment and other matters.

Additional costs and delays may be caused by the need to comply with laws and regulations. If the company is unable to obtain or renew permits or approvals, it may be forced to reduce or cease its exploration or development activities.

### **Uninsured risks**

The Company's operations are subject to certain risks and hazards, including harsh environmental conditions, industrial accidents, labour disputes, unexpected events, landslides and natural phenomena such as adverse weather conditions, floods and earthquakes. Such events could result in injury or death, environmental or other damage to the Company's or other companies' properties or production facilities, monetary loss, and possible legal liabilities.

### **Permanence of the company**

The future of the company depends on its ability to finance its operations and develop the assets it holds. Failure to obtain sufficient funding may result in the Corporation not being able to continue as a going concern, realize its assets and discharge its liabilities in the normal course of business for the foreseeable future.

**Loss of control**

The company is subject to the loss of control of its subsidiaries, entities that have entered into agreements with PyroGenesis Canada Inc. in which they have undertaken to pay royalties to the latter and have granted it options to convert said royalties into shares of their share capital for a number of shares equivalent to the number of shares held at that time by HPQ.

**Reliance on key personnel and technology partners**

The Corporation's success and viability depend to some extent on its ability to attract and retain qualified key management personnel. Competition for such staff is intense and can have an impact on the ability to attract and retain such staff. The loss of any key personnel may have a material adverse effect on the Corporation, its operations and its financial condition. As well, the Company's success and viability depend in some respects on its ability to maintain a good relationship with its priority technology partner, PyroGenesis Canada Inc.

**Global Financial Conditions**

The Company's financial results are linked to Canadian and global economic conditions. Increased uncertainty regarding regional and global financial stability could result in lower revenues for the Company and decreased credit availability and the Company's ability to raise capital. Global financial conditions continue to be characterized as volatile. In recent years, especially since the recent outbreak of COVID-19, global markets have been negatively impacted by various credit crises. Many industries, including the technology industry, have been affected by these market conditions. Global financial conditions remain subject to sudden and rapid destabilization in response to future events, as government authorities may face limited resources to respond to future crises. A continued or worsening slowdown in financial markets or other economic conditions, including, but not limited to, consumer spending, employment rates, business conditions, inflation, energy costs, consumer debt levels, lack of available credit, financial market conditions, interest rates and tax rates, may adversely affect the Company's growth and profitability. Future crises can be precipitated by a number of causes, including natural disasters, geopolitical instability, changes in energy prices or sovereign defaults. Should increased levels of volatility continue or in the event of a rapid destabilization of global economic conditions, this could have a material adverse effect on commodity prices, demand for metals, availability of credit, investor confidence and general liquidity in financial markets, which could have a negative impact on the Company's operations and the Company's stock prices.

**Public health crisis**

The global financial environment and the global economy in general have, at various times in the past and may experience extreme volatility in the future, in response to economic shocks or other events, such as the recent COVID-19 respiratory illness pandemic. Many industries are affected by market volatility in response to the widespread emergence of epidemics, pandemics or other health crises. Among the main impacts of these conditions are devaluations and high volatility in global financial, commodity and currency markets, as well as a lack of market confidence and liquidity. Financial institutions and large corporations can go bankrupt or be rescued by government authorities. Access to finance may also be negatively affected by future liquidity crises around the world. These factors may affect the Company's ability to obtain equity or debt financing and, if applicable, to obtain such financing on terms favorable to the Company. Increased levels of volatility and market turbulence could have a material adverse impact on the Company's business and anticipated growth and the trading price of its securities could be adversely affected.

The international response to the spread of COVID-19 has resulted in significant travel restrictions, temporary business closures, quarantines and an overall reduction in consumer activity. In particular, the continued global spread of COVID-19 could have a significant and adverse impact on the Company's business, including, but not limited to, employee health, workforce availability and productivity, travel restrictions, supply chain disruptions, increased insurance premiums, the availability of industry experts and personnel and other factors that depend on future developments beyond the Company's control.

While the Company is implementing business continuity measures and government recommendations to mitigate and reduce any potential impact related to COVID-19 on its operations, operations, supply chain and financial condition, the spread of COVID-19 could have a material negative impact on the Company's workforce and the development of these technology projects. Despite COVID-19, the Company continues to develop these technology projects through remote work solutions with its management team, employees, consultants and business partners, as well as government representatives. The magnitude and impacts of COVID-19 on the Company's operations cannot currently be determined as they depend on future developments that cannot be predicted, including but not limited to the duration of the pandemic, the severity of the virus and the ability to treat it, the ability to collect sufficient data to track the virus, and the collective measures taken to curb the spread of the virus.

#### **Forward-Looking Statements**

By their nature, forward-looking statements involve numerous known and unknown assumptions, risks and uncertainties, both general and specific, that could cause actual results to differ materially from those implied by the forward-looking statements or contribute to the possibility that predictions, forecasts or projections may prove materially inaccurate.

#### **Shareholder activism**

In recent years, publicly traded companies have been the subject of increasing demands from activist shareholders for changes in corporate governance practices, such as executive compensation practices, social issues or certain corporate actions or reorganizations. There can be no assurance that activist shareholders will not publicly request the Company to make certain governance changes or engage in certain corporate actions.

Responding to activist shareholder challenges, such as proxy races, media campaigns or other activities, could be costly, time-consuming and negatively impact the Company's reputation and divert attention and resources from management and the Board of Directors, which could adversely affect the Company's business and results of operations. Even if the Company undertakes to make such corporate governance changes or corporate actions, activist shareholders may continue to promote or attempt to make other changes and may attempt to acquire control of the Company to implement such changes. If activist shareholders seeking to increase short-term shareholder value are elected to the Company's Board of Directors, this could have a negative effect on the Company's future operations and activities. In addition, shareholder activism could create uncertainty about the Company's future strategic direction, resulting in the loss of future business opportunities, which could have a negative impact on the Company's business, future operations, profitability and ability to attract and retain qualified personnel.

#### **Disclosure and Internal Control**

Internal control over financial reporting is a process designed to provide reasonable assurance as to the reliability of financial information and the preparation of financial statements for external purposes in accordance with IFRS. Disclosure controls and procedures are designed to ensure that the information required by the Corporation to disclose in reports filed with securities regulators is recorded, processed, summarized and disclosed in a timely manner, and is accumulated and reported by the Corporation's

management, as appropriate, to enable required decisions to be made in a timely manner. The Corporation has invested resources to document and analyze its system of disclosure controls and internal control over financial reporting. A system of control, no matter how well designed and operated, can only provide reasonable, not absolute, assurance as to the reliability of financial information and the preparation of financial statements. The Company's failure to meet the requirements of applicable Canadian securities laws on an ongoing and timely basis could result in a loss of investor confidence in the reliability of the Company's financial statements, which could adversely affect its operations and adversely affect the price of the Common Shares. In addition, any failure to implement or difficulties in implementing the required new or enhanced controls could adversely affect the Company's results of operations or prevent it from meeting its reporting obligations.

**(s)** Bernard Tourillon, President and Chief Executive Officer

**(s)** François Rivard, Chief Financial Officer

Montreal, August 29, 2023