



**HPQ Silicon Inc.**

**MANAGEMENT DISCUSSION AND ANALYSIS**

**For the year ended December 31, 2024**

## INTRODUCTION

---

This management discussion and analysis ("MD&A"), prepared as at May 2, 2025, contains information as at December 31, 2024 and should be read in conjunction with the Consolidated Financial Statements for the year ended December 31, 2024 of HPQ Silicon Inc. ("HPQ Silicon", the "Company" or "HPQ"). The Notes referred to in this MD&A refer back to the Notes in the Consolidated Financial Statements. The Consolidated Audited Financial Statements are presented in compliance with the International Financial Information Standards ("IFRS"). All amounts are in Canadian dollars.

The information described in this report includes the activities of the parent company as well as its subsidiaries (see Note 4.2). They also demand of Management exercise its judgement in the application of the accounting methods used by HPQ Silicon. Note 5 of the Consolidated 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.

The consolidated Financial Statements of December 31, 2024, were audited by the Corporation's Auditors Forvis Mazars LLP.

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.sedarplus.ca](http://www.sedarplus.ca)).

## CAUTIONARY NOTE REGARDING FORWARD-LOOKING STATEMENTS

---

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**

---

The Company is a technology company developing next-generation processes for the manufacture of advanced materials. HPQ projects are focused on proposing innovative silicon (Si)-based solutions all the while developing a unique portfolio of Silica (SiO<sub>2</sub>) based and high value-added silicon (Si) based 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 Company's activities are mainly related to the four (4) niches :

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

- a) In collaboration with PyroGenesis, HPQ's subsidiary Silica Polvere Inc. (HSPI) is focused on developing and commercializing a new plasma process that enables the direct transformation of quartz into fumed silica.

### **2. ADVANCED SILICON-BASED ANODE MATERIALS NICHE**

- a) Working with Novacium SAS, the company is focused on developing a manufacturing capability to make advance silicon-based anode materials specifically designed for Li-ion battery anodes.

### **3. HYDROGEN NICHE**

- 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.

#### 4. SILICON (Si) NICHE

- a) In collaboration with PyroGenesis, the company is focused on the development and commercialization of the PUREVAP™ Quartz Reduction Reactor (QRR), an innovative process designed to directly transform quartz (SiO<sub>2</sub>) into high-purity (3N to 4N) low-carbon silicon (Si).

Potential market opportunities for QRR products and by-products are:

- i. Metallurgical grade silicon metal (98.5% Si) used as an alloy in aluminum applications and chemical grade silicon metal (99.5% Si) applications as raw material for silicone manufacturing and for polysilicon manufacturing;
- ii. The high purity Silicon Materials (3N to 4N), as feedstock for batteries applications and for advanced material such as silicon nitride.
- iii. Combine the gaseous CO (CO(g)) generated during the QRR carbothermic process with green or white hydrogen to produce synthetic fuels.
- iv. The Company is currently focusing its activities on the fumed silica sector.

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

- At the end of December 2024, the results after 650 cycles confirm that the GEN3 silicon-based batteries achieved a cumulative energy return of 2,296 ampere-hours (Ah), compared to only 1,766 Ah for the high-quality artificial graphite reference batteries, representing a cumulative energy gain of 30%.
- In mid-December 2024, the technology provider PyroGenesis Inc. informed HSPI that extended conditioning work on the refractory of the pilot system had been completed
- At the beginning of December 2024, HPQ signed a Memorandum of Understanding (MOU) with a company located in northern Germany. The MOU establishes the basic framework for the design, construction and operation of a manufacturing facility for advanced silicon-based anode materials for batteries, located in an industrial park in northern Germany.
- At the end of November 2024, Novacium announces that the patent application for the METAGENE™ technology has entered the PCT national phase and reached the status of "Patent Pending"
- At the end of October 2024, the results after 500 cycles continue to show that batteries using GEN3 materials have a 22% capacity improvement compared to graphite ones, with only 15% noticeable degradation.
- Mid-October 2024, HPQ filed a provisional patent application covering devices and processes for the continuous or semi-continuous production of silicon-based GEN3 materials and beyond, for Li-ion battery anodes.
- In early October 2024, results after 300 cycles continue to show that batteries using GEN3 materials have a 32% capacity improvement compared to graphite ones, with a noticeable degradation of only 5%.
- At the end of September 2024, technology provider PyroGenesis Canada Inc. informed HPQ Polvere that following the successful completion of the hot blank test of the RSP, the commissioning of the pilot plant is now complete.
- During September, test results on Silicon-Based Anode Batteries showed that after 200 cycles, it reached 3,734 mAh with 96% capacity retention.

#### **RECENT CORPORATE DEVELOPMENT OVERALL PERFORMANCE (continued)**

- At the end of August 2024, the results after 50 cycles show that batteries using GEN3 materials have a capacity improvement of 40% compared to graphite materials, 25% compared to those with GEN1, and 15% compared to those with GEN2, with no noticeable degradation.
- At the end of July 2024, Novacium's GEN3 Silicon-Based Anode Materials Exceed 4,000 mAh
- In mid-July 2024, technology provider PyroGenesis Canada Inc. informed HPQ Polvere that pre-commissioning work has been completed and commissioning of the FSR pilot plant has begun.
- As of mid-July 2024, 150-cycle results show that batteries with GEN2 materials perform better than graphite reference batteries and batteries with GEN1 materials, with significantly lower capacity degradation than GEN1 batteries
- In early July 2024, HPQ Silica Polvere Signs a Letter of Intent with Evonik Corporation
- At the end of June, testing results after 100 cycles of industrial batteries made with Novacium GEN2 silicon-based materials show continued strong overall capacity improvement compared to the graphite benchmark and GEN1 material, with minimal cycle degradation.
- In-mid June 2024 HPQ France-based affiliate, NOVACIUM SAS ("Novacium") acquired new battery testing equipment.
- In-mid June 2024, testing results at 50 cycles tests of industrial batteries made with Novacium GEN2 silicon-based materials show an overall capacity improvement of approximately 30% compared to the graphite benchmark and 14% better compared to Gen 1 material, without any noticeable cycle degradation.
- Beginning of June 2024, HPQ recovered rights lost in the Pact of Partners signed when the French company Novacium SAS was formed. The lost occurred following the Company failure to fulfill its commitment to increase its shareholding in Novacium as stipulated and provided for in the Pact of Partners, agreed and signed, with its three co-shareholders, within the granted deadlines.
- Beginning of June 2024, the pre-commissioning work HSPI 50 tonnes per year (TPY) FSR Pilot plant has begun.
- At the end of May 2024, PyroGenesis announced its intention to exercise its right to convert its royalties into a number of shares equal to the number of shares held by HPQ in HSPI.
- In mid-May 2024, preliminary maximum charge capability testing results with Novacium GEN2 silicon-based materials demonstrate a capability to improve performance by about 30% versus graphite benchmark and by 14% better versus GEN1, without noticeable first-cycle degradation.
- In mid-May 2024, a Memorandum of Understanding (MOU) was signed with Impact Funding Europe (IFE), an expert in international EU grant writing.
- In mid-April 2024, the 125-cycle tests of industrial batteries made with Novacium GEN1 silicon-based materials continued to show a performance improvement of more than 14% with no noticeable degradation over 125 cycles compared to benchmark graphite batteries
- In mid-April 2024, the overall design of the 50 tonnes per year (TPY) pilot plant system was reworked and simplified to accelerate the path to commercial scalability, effectively minimizing the risks associated with scaling up.

#### **RECENT CORPORATE DEVELOPMENT OVERALL PERFORMANCE (continued)**

- At the end of March 2024, the 100-cycle test of industrial batteries, made with Novacium GEN1 Silicon-based materials, continues to show a performance improvement of more than 14% but with a similar level of degradation to graphite reference batteries.
- In mid-March 2024, the 50-cycle test of industrial batteries, made with Novacium GEN1 Silicon-based materials, continues to show a performance improvement of more than 14% with no noticeable degradation over 50 cycles.
- In early March 2024, confirmation that all important equipment required for the final assembly of the RSP has been received.
- At the end of February 2024, the 25-cycle test of industrial batteries, made with Novacium's GEN1 Silicon-based materials, continues to show a performance improvement of more than 14% without noticeable degradation during the first 25 cycles.
- At the end of January 2024, an agreement was signed to study the possibility of integrating Novacium's hydrogen manufacturing technology into vehicles in the French defence industry.

#### **FINANCING AND OTHER**

- During the exercise ended December 31, 2024, 2,925,000 common shares were issued following the exercise of share-based payments. The weighted average share price at the exercise was \$0.23 per share and 100,000 common shares were issued following the exercise of warrants at a weighted average cost of \$0.30 per share.
- On June 21, 2024, the Company an issuance of 6,898,140 units for a value of \$1,483,100 to pay the reassertion of rights in Novacium agreement. Each unit is composed of one common share and one-half of a warrant. Each warrant entitles its holder to acquire one common share of the Company at a price of \$0.30 per share for 48 months following the closing date of the transaction.
- On January 26, 2024, the Company settled a trade account payable of \$38,700 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.
- On January 14, 2024, 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.
- As at December 31, 2024, the Company had \$676,955 in cash and cash equivalents, marketable securities of \$326,725, goods and services tax receivable of \$200,712, investment tax credits receivable of \$476,063 and \$188,901 in prepaid expenses and others.

## HPQ TECHNOLOGIES

---

### 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 that varies between 8 tonnes (t) of CO<sub>2</sub> e per t of fumed silica and 17 t of CO<sub>2</sub> e per t of fumed silica, with more than 60% of these emissions coming from the use of silicon as a feedstock.

### FUMED SILICA REACTOR

The Fumed Silica Reactor ("FSR") of HPQ Silica Polvere Inc (HSPI), a 100% owned HPQ subsidiary until PyroGenesis announced its intention to exercise its right to convert its royalties into a number of shares equal to the number of shares held by HPQ in HSPI, is much simpler process than traditional fumed silica production methods.

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.

The FSR enables a direct transformation of quartz into fumed silica, bypassing the conventional carbothermic reduction process typically required to convert quartz into silicon. This process also eliminates the additional steps needed to transform silicon into fumed silica and produces it without the use of hazardous chemicals or the release of hydrogen chloride gas (HCl), which is usually associated with its manufacture.

The process requires between 8,000 kWh to 12,000 kWh to produce a t of Fumed Silica, compared to the 100,000 kWh to 120,000 kWh required to produce the same amount with traditional processes, representing a 92% reduction in the energy footprint.

This innovation has the potential to reduce direct CO<sub>2</sub> emissions associated with the production of fumed silica 99%, which is equivalent to reductions of between 7.9 t CO<sub>2</sub> and 19.9 t CO<sub>2</sub> per t of fumed silica produced.

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 progressing.

As of December 31<sup>th</sup> 2024, HSPI paid \$620,205 (29%) of the project cost to date regarding the ongoing engineering and design work.

During Q1 2023, the development of the PyroGenesis-led project for HSPI reached several important milestones:

1. The completion of the engineering tasks related to the design and fabrication of the Pilot Plant.
2. The conducted a series of small-scale R&D tests to validate and improved concepts for the pilot plant and produce small sample sizes of fumed silica for evaluation. These tests were important as they provide useful information for:
  - a. Identify production parameters that optimize the process and quality of small-scale fumed silica and,
  - b. Evaluate the properties of lab-scale fumed silica powders and compare them with commercial-grade materials.
  - c. 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, several lab-scale tests using raw quartz (SiO<sub>2</sub>) as feedstock to produce Fumed Silica in a one-step process were successfully completed. 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).
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 same period, HSPI and technology provider PyroGenesis Canada Inc. successfully signed two (2) non-disclosure agreements ("NDAs") with Fumed Silica Manufacturer, whose identities were not disclosed.

The main objective of the NDA'S is to enable the parties to assess the characteristics of the Fumed Silica produced by the FSR versus the commercial fumed silica manufactured by the Parties having signed the NDAs.

In Q3 2023, samples of the fumed silica samples, produced using the lab-scale FSR model, were shipped to third-party under NDAs for third parties' evaluations.

In Q4 2023, HSPI and technology provider PyroGenesis successfully signed a third Non-Disclosure Agreement ("NDA"). This agreement involves another participant in the fumed silica industry, who wants to evaluate materials produced by HPQ Polvere's proprietary FSR technology. The agreement aims to facilitate the sharing of samples for evaluation purposes.

During the same quarter, the Company received an Independent analysis done at McGill University confirming that HSPI's Fumed Silica Reactor produces commercial-quality hydrophilic material with a high surface area and excellent thickening efficiency.



The salient point of the analysis is that it confirms that the HPQ-produced Fumed Silica material, made under less-than-optimal operating parameters, is of commercial quality with the following key characteristics [1]:

- It is Hydrophilic,
- It possesses High Surface Area (135-185 m<sup>2</sup>/g), and
- It has Excellent Thickening Efficiency.

Making commercial-grade Fumed Silica directly from quartz is already a substantial disruptive advantage, the lab-scale testing of HSPI's proprietary FSR process provided PyroGenesis with the necessary operational data to estimate, in more detail, the following significant advantages of the FSR over conventional processes:

- 1) Reduction in energy consumption by 87.5% to 90% versus conventional processes. As energy represents one of the largest variable costs in traditional Fumed Silica production processes, HPQ Polvere, with its proprietary Fumed Silica Reactor, gains a substantial economic advantage over traditional manufacturers.
- 2) Furthermore, modelization indicate that by using our process, CO<sub>2</sub> eq. emissions can be reduced by 84% to 88%, versus traditional processes.
- 3) Finally, traditional processes to make Fumed silica produce an average of 2.4 Kg of Hydrogen chloride (HCl) per Kg of Fumed silica produced [4]. HCl, being a hazardous by-product, the Capex and Opex costs associated with its management can be substantial. As the FSR process does not produce any HCl, this represents an additional substantial economic advantage for HPQ Polvere.

During Q1 2024, the Company the completed an internal technical study (the "Study") related to its proprietary Fumed Silica Reactor technology. The study was prompted by an inquiry from a participant in the Fumed Silica industry under NDA.

In addition, in early Q3 2024, HSPI signed a letter of intent with Evonik Corporation (Evonik), a global specialty chemicals company that manufactures a wide range of high-performance materials, including fumed silica. The objective of this letter of intent is for HSPI to collaborate with Evonik during the pilot phase to validate the RSP's ability to produce materials that comply with Evonik's specifications. This will involve scaling up the first-generation laboratory process of HPQ POLVERE, which has already manufactured samples to Evonik's specifications.

During the same period, all major equipment's needed for the 50 tonnes per year (TPY) FSR pilot plant have been received.

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

The goal of the program is building and operating a 50 Tonnes (t) per year (TPY) Fumed Silica Reactor pilot plant.

During Q4 2024, the pilot plant was supposed to start its operations, but it was push back to Q1 2015. The pilot plant tests are to be carried out in the following order.

During Phase1, the system will operate under a batch protocol with the goal of replicating the production of fumed silica material with specific surface areas between 150 – 200 m<sup>2</sup>/g, similar results to those obtained at lab-scale.

Representative samples of the commercial-grade materials produced during this phase will be sent for qualification to multiple potential clients who have shown interest in our products, with the aim of securing priority offtake agreements for our fumed silica material.

During Phase2, the pilot plant operations will be optimized in order to target the production of food/pharma grade fumed silica material with specific surface areas exceeding 300 m<sup>2</sup>/g. This high value material is used in 'beauty and personal care' products—a market segment expected to drive increase demand for fumed silica and is projected to constitute 30% of the entire Fumed Silica market by 2032.

During Phase 3, the system will progress to semi-continuous operations with the goal of producing 5m<sup>3</sup> (200kg) of commercial-grade fumed silica, equivalent to 199 times the entire lab-scale production.

Furthermore, if additional material were to be needed to fulfill clients demand and or qualify HSPI low-carbon fumed silica with additional potential clients, the system could switch to its full capacity mode, running multiple production cycles throughout the day. Assuming 20 hours of operations per day, the system could produce around 161 kg/day, equivalent to about 50,000 kg per year (50 TPY).

Although the successful validation of upgrading the technology to achieve commercial-grade industrial production of Fumed Silica is not guaranteed, ongoing discussions point to opportunities for commercial partnerships during validation.

These partnerships could take place in a variety of ways, including offtake agreements and/or technology adoption.

Based on these discussions, and to meet the anticipated demand for low carbon Fumed Silica, HSPI's commercialization strategy is based on the construction of an initial commercial FSR, with a capacity which should not exceed a scale-up equal to 20 times the size of the 50 TPY Fumed Silica Reactor (FSR)) pilot plant.

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

For the period ending December 31, 2024, the company's *Fumed Silica Reactor* patent portfolio consisted of one patent acquired from PyroGenesis Canada Inc. by HPQ Silica Polvere Inc (HSPI) (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, HSPI 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.

HSPI 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 HSPI Field of Activity, HSPI shall have a right of first refusal, provided, however, that HSPI 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.

#### **ADVANCED SILICON-BASED ANODE MATERIALS NICHE**

Over the last few years HPQ has signed multiples NDAs with EV manufacturers, battery makers and other high-value materials companies.

During 2023, the company studied the market and technologies currently being commercially deployed with respect to the addition of silicon materials in batteries. Two important trends stand out:

1. Even micronize, 3N and 4N purity silicon powders cannot be used without significant modifications in the batteries,
2. The major trend in the lithium battery industry is adding a small amount (5%) of silicon oxide (SiO<sub>x</sub>) into graphite anode composite.

This basic SiO<sub>x</sub> material, primarily used in the fabrication of optical materials, sells for about US\$15 per kg and delivers less than optimal results.

While Silicon remains the most promising candidate that can drastically improve the anode performance (more than 10 times), its industrial application is still very limited due to unresolved issues related to volumetric expansion or due to the usage of very complex and highly expensive solutions.

The manufacture of an engineered silicon-based anode material will enable the battery industry to overcome these problems and increase battery capacity without significant degradation of the battery's lifetime.

Even though the demand for advanced silicon-based anode materials already exists, the supply of these materials is mainly from China, since there are few manufacturers in North America or Europe making this type of materials, and moreover those that do exist offer complex, expensive solutions and not adapted to the reality of the market, which represents an opportunity for HPQ.

That's why we focus our efforts on manufacturing advanced silicon-based anode materials for Li-Ion battery applications, in collaboration with Novacium, our French associated company. Novacium has extensive know-how in silicon, its use and how it has adapted and improved the technologies available in the market for the manufacture of advanced silicon-based anode materials for batteries.

#### **ADVANCED SILICON-BASED ANODE MATERIALS PROGRESS MILESTONES**

Since its creation in 2022, Novacium is actively working to identify the characteristics of Si or SiO<sub>x</sub> materials available in the market, with the aim of proposing an approach that would allow HPQ/Novacium to set up a first production line capable of manufacturing 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.

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 High-Performance Material Company ("HPMC"). Following this, the first batches of 4N+ purity silicon micrometric powder samples were delivered to the HPMM under NDA from materials prepared by Novacium.

In order to validate the process, at the end of December 2023 Novacium, working with an external laboratory, produced 18650 industrial batteries using its advanced silicon for batteries.

Two batches were prepared, the first batch used 100% graphite anode materials, serving as a reference battery for performance comparison. These references were then compared to the second batch, which consisted of a mixture of 90% graphite and 10% Novacium's first-generation advanced silicon-based anode materials.

In the first quarter of 2024, the company began to receive very promising results on the performance of 18650 batteries made of a blend of graphite and Novacium's first-generation (GEN1) advanced silicon-based anode materials.

The highlight is that at 100 cycles, testing on the GEN1 18650 batteries continues to indicate a 14% improvement in performance and a low level of degradation compared to graphite reference batteries.

During the second quarter of 2024, the Company continued to receive very promising performance results from 18650 batteries manufactured with a first-generation (GEN1) blend of Novacium silicon anode materials and graphite.

At 125 cycles, testing on the 18650 GEN1 batteries continues to indicate a 14% performance improvement, and a low level of degradation compared to graphite reference batteries.

In addition, the company has achieved very promising results regarding the maximum capacity of the 18650 batteries manufactured with a second-generation (GEN2) blend of silicon-based anode materials, Novacium and graphite.

Preliminary results on the 18650 GEN2 batteries demonstrate an ability to improve maximum performance by approximately 30% compared to graphite reference batteries and 14% compared to those manufactured with GEN1 hardware.

50-cycle testing of GEN2 materials shows an overall improvement in charge and discharge capability compared to graphite reference batteries, and compared to those manufactured with GEN1 hardware, with no noticeable degradation in performance.

100-cycle testing of GEN2 materials shows a continuation in overall capacity improvement compared to graphite reference batteries and those made with GEN1 hardware, with no noticeable degradation in performance.

During the third quarter of 2024, the Company began to receive very promising results regarding the performance of 18650 batteries manufactured with a third-generation (GEN3) blend of Novacium and graphite-based silicon anode materials.

The batch of batteries, made with a blend of graphite and Novacium's silicon-based partially optimized third-generation (GEN3) advanced anode materials, achieved an average capacity of 4,030 milliampere-hours (mAh), making Novacium one of only three companies in the world to have published 18650 battery capacity results above 4,000 mAh.

By the end of the third quarter, 200 cycles of charge-discharge testing had been completed on 18650 lithium-ion batteries with Novacium GEN3 silicon. These tests revealed a 36% improvement in capacity, with only 2% degradation compared to the graphite reference batteries. The remaining capacity of 3,734 mAh exceeds that of the main models of the new 18650 batteries available on the market with initial capacities that vary from 3,000 mAh (+25%) to 3,450 mAh (+8%).

By the end of the fourth quarter, 650 cycles of charge-discharge tests had been completed on 18650 lithium-ion batteries with Novacium GEN3 silicon. The latest results confirmed that the 18650 batteries using Novacium's GEN3 silicon-based anode materials achieved a cumulative energy return of 2,296 ampere-hours (Ah), compared to just 1,766 Ah for the high-quality artificial graphite reference batteries, representing a cumulative energy gain of 30%.

For the period ended December 31, 2024, the Company incurred \$850,000 in expenses related to the advancement of manufacturing advanced silicon-based anode materials and high value-added silicon materials. However, it is important to note that these expenses will be eligible for the research tax credit in France.

#### **ADVANCED SILICON-BASED ANODE MATERIALS FUTURE PROGRESS MILESTONES**

One of the goals of the current phase of the battery initiative is to position itself to provide an advanced silicon-based anode material that meets the needs of industry buyers.

HPQ/Novacium are currently studying the best approach for the commissioning of a first production line capable of manufacturing advanced silicon-based anode materials. It is with that in mind that the Company has already identified many of the technological elements needed to achieve this goal and use this information as a basis for grant applications to move the project forward.

HPQ and Novacium are collaborating with several high-level research centers to study how to improve the performance of silicon-based batteries. Once all the tests done with non-optimized materials have reach their technical limits, Novacium will conduct tests to determine whether its patented surface treatment processes can improve the performance of materials used in batteries.

The findings on silicon-based anode materials are attracting interest from across the industry, including battery manufacturers, graphite companies, and industry groups, with at least 15 new non-disclosure agreements (NDAs) signed or underway.

The cost of this work for the first quarter of fiscal year 2025 is estimated at \$200,000. However, it is important to note that these expenses will be eligible for the research tax credit in France.

### **INTELLECTUAL PROTECTION FOR SILICON-BASED ANODE MATERIALS**

As of December 31, 2024, only two patent application has been filed by HPQ under HPQ's battery initiative.

In September 2023, a fifth QRR patent application for HPQ Silicon was filed in France. This new application is provisional and is entitled "*Apparatus for the production of a silicon-based material under vacuum*". 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 a payment by HPQ Silicon to the inventors of €60,000 will settle this debt in full and result in a final discharge. In November 2023, the company paid this amount of \$86,450.

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.

In October 2024, HPQ filed a provisional patent application in France, which extends the scope of its pending patent for SiOx's continuous manufacturing process. The patent describes the apparatus and processes essential for the continuous or semi-continuous production of high-performance silicon-based materials

Furthermore, Novacium has acquired a family of patents related to the surface treatment of carbonaceous materials from Dr. Alexander Zaderko.

- Patents (US 10000382 et UA 110301) associated with the family WO 2016/072959, (METHOD FOR CARBON MATERIALS SURFACE MODIFICATION BY THE FLUOROCARBONS AND DERIVATIVES), held by Alexander ZADERKO, Vasyl PRUSOV et Vitaliy DIYUK, are in the process of being registered in the name of Novacium SAS.

- Patents applications (DE 112017007450 et US 2020/198971) associated with the family WO 2018/194533, (METHOD FOR CHEMICAL MODIFICATION OF FLUORINATED CARBONS WITH SULFUR-CONTAINING SUBSTANCE) held by Alexander ZADERKO, Vasyi PRUSOV et Vitaliy DIYUK, are in the process of being registered in the name of Novacium SAS.
- Patents applications (CA 3 123 354, EP 198 365 16.5, JP 2021-534281, KR 10-2021-7021938, US 17/413,591, UA 123512) ) associated with the family WO 2020/121119, (THE PROCESS FOR OBTAINING OF FLUORALKYLATED CARBON QUANTUM DOTS), held by Alexander ZADERKO, are in the process of being registered in the name of Novacium SAS.

#### **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.

After a careful review of the Nano Silicon material market environment, the technology advancement and associated future development costs needed to get the PUREVAP™ Nano Silicon Reactor (NSiR) to a potential commercial stage, HPQ has advised its technology provider that it no longer intends to pursue the development of this technology.

As a result of this decision, during fiscal 2023, the Company wrote off all intangible assets related to the PUREVAP™ Nanosilicon Reactor (NSiR).

#### **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, the Company's decision to no longer pursue its activities related to the development of this technology, means that HPQ NANO returned ownership of the patent to PyroGenesis during Q1 2024.

#### **HYDROGEN NICHE**

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

The new hydrogen production system uses a chemical process to liberate hydrogen from specific low-cost, low-carbon footprint, and non-hazardous alloys. Furthermore, the hydrogen produced by the chemical process directly reaches industry-standard pressure levels, typically ranging from 200 to 1,000 bars.

Unlike traditional electrolysis-based hydrogen production systems, Novacium's process operates without the need for electricity, extensive storage, and complex transportation infrastructure, offering a truly autonomous solution.

## **HYDROGEN NICHE PROGRESS MILESTONES**

During 2024, the Novacium team completed laboratory-level tests on the development of autonomous hydrogen manufacturing processes by hydrolysis of silicon and other materials. In addition, the company has had discussions with several external service providers and finalized the system specifications.

For the period ended December 31, 2024, the Company incurred about \$275,000 in expenses related to the advancement of hydrogen niche. However, it is important to note that these expenses will be eligible for the research tax credit in France.

## **HYDROGEN NICHE FUTURE PROGRESS MILESTONES**

The company is currently in discussions with several technology providers with the aim of having the first prototypes completed by the end of 2025.

Novacium is currently engaged in discussions aiming to secure grant financing, from two potential clients, to cover 35% to 75% of the costs to deliver the first working prototype of the system by the end of 2025.

For cost of the ongoing work for Q1 2025 are estimated at \$150,000. However, it is important to note that these expenses will be eligible for the research tax credit in France.

## **NEW TECHNOLOGIES INTELLECTUAL PROTECTION**

During the first semester of 2023, no new patents resulting from the collaboration with Novacium SAS have been filed.

In September 2023, NOVACIUM SAS ("Novacium") has filed a patent application for a low carbon footprint, chemical based, on-demand and high-pressure autonomous hydrogen production system.

The new hydrogen production system uses a chemical process to liberate hydrogen from specific low-cost, low-carbon footprint, and non-hazardous alloys. Furthermore, the hydrogen produced by the chemical process directly reaches industry-standard pressure levels, typically ranging from 200 to 1,000 bars.

The search report of the Patent Examiners' Office highlighted the unique innovation and robustness of the technology without any prior art, which is very rare. By November 2024, the test results obtained at the laboratory pilot scale helped immensely in strengthening the patent application before moving to the PCT national phase and reaching the status of "Patent Pending".

## **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 CO<sub>2</sub> per tonne (t) of silicon produced. This makes Silicon Metal manufacturing the largest emitter of CO<sub>2</sub> among all metals and non-ferrous metals, based on a tCO<sub>2</sub>/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 (SiO<sub>2</sub>) 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. There by 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 Tonnes (t) to make 1 t of silicon versus 6 t to produce 1 t). This potential 25% reduction in raw material consumption could, according to management's assumptions, translate into production cost savings of up to 10%. In addition, this process makes it possible to produce silicon of higher purity (4N instead of 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 was completed in October 2023. Still, 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.

During fiscal year, 2023, the Gen3 QRR testing to date and the silicon purity results have validated 100% of the project's key milestones, especially:

- 1) Scaling up production by 2,500X from PUREVAP™ Gen2 QRR.
- 2) Reproducibility of the one step production of Silicon that exceeds the highest purity threshold **(2N)** of commercially available silicon material, and
- 3) Demonstrating the semi-continuous batch production capability of the reactor.
- 4) Completed a Silicon Pour
- 5) 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



- 6) 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%).

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

Work done in 2023 having validated 100% of the project's critical milestones of the pilot plan project, combined with the fact that the Company activities will be primarily focused on our Fumed Silica, advanced silicon-based anode materials and hydrogen niches, the company's activities surrounding the PUREVAP™ QRR project will instead be focused on:

1. Finalizing an agreement regarding the development of a technologies for capturing CO gas generated during the direct carbothermic production of silicon from quartz and its conversion into solid carbon that can be reinjected into the next production cycle, and/Or,
2. The finalization of a development agreement relating to the addition, to the RRQ process, of a capacity to recover CO generated by the carbon-reduction process for its use with the Fischer-Tropsch process in the production of green synthetic fuels.

The costs related to the work required to complete the above points will be finalized once one of the following conditions is met:

1. The terms of an agreement regarding the development of technology for capturing CO gas, generated during the direct carbothermal production of silicon from quartz, and converting it into solid carbon for reinjection into the next production cycle, have been finalized; or
2. The Company signs a development agreement to add carbon reduction CO recovery capacity to the QRR process for use in the Fischer-Tropsch process for producing green synthetic fuel.

This will be followed by a canvassing period in order to obtain as much funding as possible through a grant from the appropriate government authorities for proof-of-concept studies regarding HPQ Green Silicon capability.

In parallel, the company is currently in preliminary discussions with industrial groups under NDA in order to secure financing for this project.

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

For the period ending December 31, 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 \$114,632 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 \$121,600. 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.

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.

In the last quarter of 2023, management decided to optimize the jurisdictions covered by patent applications, and this decision leads us to devalue the carrying value of patents associated with certain specific jurisdictions and the book value of the related patents of \$644,721 with a corresponding depreciation of \$91,787 for a net charge of \$552,934.

In the last quarter of 2024, management decided to write off the QRR PUREVAP™ process for an amount of \$1,484,644, in order to refocus, in the medium term, the Company's activities on priority niches, namely fumed silica, advanced silicon-based anode materials and hydrogen. However, the Company retains all of its intellectual property rights related to this process.

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 3 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.

The delays associated with finalizing an agreement related to the development of technology for capturing CO gas generated during the direct carbothermic production of silicon from quartz — and converting it into solid carbon that can be reinjected into the next production cycle — led management, in the fourth quarter of 2023, to write down the carrying amount of the IP by \$3,599,999, including related amortization of \$264,706, resulting in a net expense of \$3,335,293.

Under the original terms of the agreement, HPQ was initially required to pay the purchase price of the intellectual property, totaling \$3,600,000, by June 30, 2023. However, an addendum to the agreement has deferred the cash payment of the remaining balance of \$3,430,000 until the end of fiscal 2024. On January 15, 2025, the Company settled a total debt of \$4,941,440, including this amount

## RESEARCH AND DEVELOPMENT EXPENSE

The following table represents the research and development expenses for the quarter and exercise ending December 31, 2024, compared to the corresponding period of 2023.

	QUARTER		Project		
	2023	2024	PUREVAP QRR	FUMED SILICA	Other
Beginning balance September 30	2,358,891	1,145,649	24,195	284,021	837,433
Addition					
Salary	273,105	209,333	-	-	209,333
Consultant	318,134	125,791	9,090	-	116,701
Patent and maintenance	394,645	100,254	77,666	-	22,588
Supply for testing	136,763	-	-	-	-
Material	(67,112)	(10,199)	-	-	(10,199)
Travel expenses	43,875	9,880	-	-	9,880
Grant	-	(5,256)	-	-	(5,256)
	1,099,410	429,803	86,756	-	343,047
Investment tax credits	(460,595)	(237,761)	-	-	(237,761)
Total Quarter:	638,815	192,042	86,756	-	105,286
Total as at December 31:	2,997,706	1,337,691	110,951	284,021	942,719

## RESEARCH AND DEVELOPMENT EXPENSE (continued)

	EXERCISE		Project		
	2023	2024	PUREVAP QRR	FUMED SILICA	Other
Salary	823,279	884,039	-	-	884,039
Consultant	1,192,363	321,934	33,285	-	288,649
Patent and maintenance	394,645	213,286	77,666	-	135,620
Supply for testing	955,930	-	-	-	-
Material	63,186	16,119	-	-	16,119
Equipment and installation	-	284,021	-	284,021	-
Travel expenses	94,686	48,531	-	-	48,531
Grant	-	(26,327)	-	-	(26,327)
	3,524,089	1,741,603	110,951	284,021	1,346,631
Investment tax credits	(526,383)	(403,912)	-	-	(403,912)
Total the year:	2,997,706	1,337,691	110,951	284,021	942,719

## RECENT CORPORATE DEVELOPMENT OVERALL PERFORMANCE

### SELECTED FINANCIAL INFORMATION

#### The last quarter of 2024

The Net Loss decrease of \$4,330,420 (56%) (\$3,350,522 vs \$7,680,942) compared to the 2023 period corresponds to the decrease in operating expenses of \$3,942,300 (56%) (\$3,027,342 vs \$6,969,642) and the increase the other income and expenses of \$343,662 (54%) (\$339,445 vs \$683,107). During the last seven quarters, their respective averages were \$2,952,026 and \$2,825,325.

**SELECTED FINANCIAL INFORMATION (continued)****The last quarter of 2024 (continued)**

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

	2024				2023			
Quarter finishing on:	12/31	09/30	06/30	03/31	12/31	09/30	06/30	03/31
	\$	\$	\$	\$	\$	\$	\$	\$
Operating	3,027,342	1,235,640	1,554,156	1,289,121	6,969,642	4,310,323	2,370,370	2,048,020
Net loss (income)	3,350,522	155,396	3,109,318	1,370,601	7,680,942	3,839,501	2,865,856	1,658,030
Results per share (basic and diluted)	(0.01)	(0.00)	(0.01)	0.00	0.02	0.02	0.00	0.00
Current assets	1,877,633	3,763,731	1,768,125	1,765,779	2,225,949	2,428,770	3,560,226	4,694,228
Total assets	4,808,003	7,940,770	7,496,982	8,035,576	9,059,516	13,981,183	18,612,872	20,335,290
Current liabilities	6,716,545	6,261,286	5,981,832	5,589,434	5,393,775	4,584,407	4,403,695	4,524,567
Non-current liabilities	1,941,449	2,034,635	1,986,329	1,863,226	1,831,559	1,839,475	2,821,545	2,734,415
Shareholders' Equity	(3,849,991)	(355,151)	(471,179)	582,916	1,834,182	7,557,301	11,387,632	13,076,308

**Financial year of 2024**

During the year of 2024, the Company saw a decrease in its Net Loss of \$8,058,006 (51%) (\$7,985,837 vs \$16,043,843) compared to the 2023 period, while operating costs decreased of \$8,592,096 (53%) (\$7,106,259 vs \$15,698,355) and the decrease in other income and expenses of \$567,208 (\$884,989 vs \$317,781), during the last three previous periods these costs averaged respectively at \$10,486,415 and \$9,904,170.

## SELECTED FINANCIAL INFORMATION (continued)

### Financial year of 2024 (continued)

The following table presents financial information for the periods 2021 at 2024.

	2024	2023	2022	2021
	31/12	31/12	31/12	31/12
	\$	\$	\$	\$
Operating costs	7,106,259	15,698,355	8,219,461	5,794,694
Net loss	7,985,837	16,044,329	9,084,135	6,331,266
Basic and diluted earnings per share	(0.02)	(0.04)	(0.03)	(0.02)
Current assets	1,877,633	2,225,949	5,551,792	4,410,906
Total assets	4,808,003	9,059,516	21,612,239	21,722,779
Current liabilities	6,716,545	5,393,775	4,435,269	601,340
Non-current liabilities	1,941,449	1,831,559	2,658,300	2,789,194
Shareholder's equity	(3,849,991)	1,834,182	14,518,670	18,332,245

## GENERAL DISCUSSION OF FINANCIAL INFORMATION FOR THE LAST QUARTER AND THE EXERCISE OF 2024

### Analysis of comprehensive income

Compared to the corresponding quarter of 2023, the Company saw a decrease the Net loss of \$4,330,420 (56%) (\$3,350,522 vs \$7,680,942) which corresponds to the decrease in operating expenses of \$3,942,300 (56%) (\$3,027,342 vs \$6,969,642) and the increase the other income and expenses of \$343,662 (54%) (\$339,445 vs \$683,107).

While for the year of 2024 compared to the corresponding period of 2023, the Company saw a decrease in its overall losses of \$8,058,006 (51%) (\$7,985,837 vs \$16,043,843). This is due to the decrease in operating costs of \$8,592,096 (53%) (\$7,106,259 vs \$15,698,355) and the decrease in other income and expenses of \$567,208 (\$884,989 vs \$317,781).

**GENERAL DISCUSSION OF FINANCIAL INFORMATION FOR THE LAST QUARTER AND THE EXERCISE OF 2024** (continued)

**Analysis of the operating costs**

The following table presents the major changes in certain components of comprehensive income compared to the 2023 period for the operating costs of the last quarter and the year of 2024.

	QUARTER		Increase /(Decrease)
	2024	2023	
Salaries and employee benefits expenses	249,288	1,422,409	(1,173,121)
Other operating expenses			
Professional Fee and Consultant			
- Legal fees	36,309	174,460	(138,151)
- Accounting professional fees	33,089	73,757	(40,668)
- Business development consultant	76,613	121,031	(44,418)
Travelling expenses	32,151	2,827	29,324
Amortization of Intangible assets	73,433	157,122	(83,689)
Write-off of Intangible assets	1,484,644	3,888,227	(2,403,583)
Allowance for credit losses	284,097	-	284,097
Research and development costs	470,241	638,815	(168,574)

	Exercise		Increase /(Decrease)
	2024	2023	
Salaries and employee benefits expenses	753,496	1,929,707	(1,176,211)
Other operating expenses			
Professional Fee and Consultant			
- Legal fees	231,765	340,904	(109,139)
- Accounting professional fees	192,318	189,684	2,634
- Business development consultant	237,436	405,780	(168,344)
Information to shareholders and registration fees	100,516	131,061	(30,545)
Write-off of Intangible assets	1,484,644	6,840,106	(5,355,462)
Allowance for credit losses	284,097	-	284,097
Research and development costs	1,337,691	2,997,706	(1,660,015)

## **GENERAL DISCUSSION OF FINANCIAL INFORMATION FOR THE LAST QUARTER AND THE EXERCISE OF 2024 (continued)**

---

### **Salaries and employee benefits expenses**

The decrease is related to the grant the stock options in 2023

### **Research and development costs**

For the last quarter of 2024, there were research and development costs of \$278,199 which are distributed for the QPP PUREVAP project in the amount of \$86,756 and an amount of \$343,047 including a grant received for research on battery materials and other projects from Novacium. There is also an amount for the investment tax credit of \$237,761 on Novacium's projects. The decrease in research and development expenditures of \$446,773 compared to the 2023 period is mainly due to the research and development tax credit on Novacium projects of \$237,761 in 2024.

For the year of 2024, research and development expenses of \$1,337,691 are allocated to an amount of \$33,285 for the consultants of the Purevap QPP, \$284,021 for the last phase of the fumed silica project, \$77,666 for the maintenance of the Purevap QPP patents and \$1,346,631 for other projects under development of our associate company Novacium. There is an amount for the research and development tax credit of \$403,912 on Novacium's projects. The decrease in research and development expenditures of \$1,660,015 compared to the 2023 period is mainly due to the testing that was conducted on the Gen 3 QRR in 2023.

### **Other operating expenses**

#### **Professional Fees**

Compared to 2023, for the last quarter of 2024, there is a decrease in legal fees of \$138,151 for a decrease in the work requested, a decrease in accounting and audit fees of \$40,668 which is the result of the change of auditor for the year and a decrease in fees for business development consultants of \$44,418 which is related to the development of various markets for the products developed by the HPQ group.

For the exercise of 2024, there is a decrease in legal fees of \$109,139 which almost represents the value of the options issued to our consultant for 2023 and a decrease in fees for business development consultants of \$168,344 which is due to a lower need for the development of various markets for the products developed by the HPQ group.

#### **Traveling expenses**

The increase of \$29,324 in travel expenses for the last quarter of 2024 is for business development for the HPQ group in Europe.



**GENERAL DISCUSSION OF FINANCIAL INFORMATION FOR THE LAST QUARTER AND THE EXERCISE OF 2024** (continued)

**Write-off of Intangible assets**

As the Company's activities will be primarily focused, in the medium term, on the fumed silica, advanced silicon-based anode materials and hydrogen niches, management has decided to delist the QRR PUREVAP™ process for an amount of \$1,484,644 during the last quarter of 2024, while retaining its intellectual property rights.

**Analysis of Other Income (Expenses)**

The following tables represent the major changes in certain components of other income/(expenses) compared to 2023 for the last quarter and exercise of 2024.

	QUARTER		Increase /(Decrease)
	2024	2023	
Financial income (loss)	(637,998)	(396 761)	241,237
Reassertion of rights in Novacium partnership agreement	333 354	-	333 354

	EXERCISE		Increase /(Decrease)
	2024	2023	
Financial income	830,821	(847 737)	1 678,558
Reassertion of rights in Novacium partnership agreement	(1 483 100)	-	(1 483 100)

**Finance income**

During the last quarter of 2024, the Company disposed of 75,000 shares of PyroGenesis and 1,105,000 shares of Québec Innovative Materials Corp. (QIMC) for a total amount of \$243,844, resulting in a gain of \$70,938.

For the year of 2024, the Company disposed of 1,400,000 shares of PyroGenesis and 2,400,000 shares of Québec Innovative Materials Corp. (QIMC) for a total amount of \$1,387,524, realizing a loss of \$177,360. In addition, the Company exercised 375,000 warrants of PyroGenesis for an amount of \$281,250.

Financial income varies mainly through the adjustment of the fair market value of our marketable securities.

## **GENERAL DISCUSSION OF FINANCIAL INFORMATION FOR THE LAST QUARTER AND THE EXERCISE OF 2024 (continued)**

---

### **Reassertion of rights in Novacium partnership agreement**

During the last quarter of 2024, the Company adjusted the value of the transaction to present the warrants on a residual basis.

For the period of 2024, the Company issued 6,898,140 units for a total value of \$1,483,100 for the reassertion of rights in Novacium's partnership agreement. In doing so, the Company regains all of its rights in the pact of partners and in Novacium and by avoiding costly and perilous legal proceedings.

### **FINANCIAL SITUATION**

#### **Financial Position**

As at December 31, 2024, the Company had negative working capital of \$4,838,912 (\$3 167 826 as of December 31, 2023). Total Current assets are \$1,877,633 (\$2,225,949 as of December 31, 2023) and current liabilities are \$6,716,545 (\$5,393,775 as of December 31, 2023).

#### **Current assets**

Current assets consist of the following:

- Cash and cash equivalents of \$676,955 (\$597,404 as at December 31, 2023).
- Marketable securities of \$326,725 (\$676,493 as at December 31, 2023). It represents the fair market value of the shares of PyroGenesis as well as those of Québec Innovative Materials Corp.
- Goods and services taxes receivable of \$200,712 (\$66,545 as of December 31, 2023). This amount represents our last two quarter.
- An investment tax credit to be received of \$476,063 (\$692,508 as of December 31, 2023) consists of the 2023 and 2024 research and development tax credits, which include Novacium's tax credit in the amount of approximately \$408,000 in 2024.
- Prepaid expenses and other of \$188,901 (\$192,999 as of December 31, 2023). This amount represents directors' and officers' insurance and equipment, annual fees for OTC Markets and the TSX Venture Exchange and miscellaneous amounts.

#### **Current assets**

- For royalties receivable, management has taken a credit risk allowance of \$209,097, which represents all royalties receivable. Management is analyzing various solutions to allow us to recover this amount.

#### **Non-current assets**

During the year of 2024, the Company acquired \$9,759 of the equipment and write off intangible assets of \$1,484,644 related to the QRR Purevap™ project.

## **GENERAL DISCUSSION OF FINANCIAL INFORMATION FOR THE LAST QUARTER AND THE EXERCISE OF 2024 (continued)**

---

### **FINANCIAL SITUATION (continued)**

#### **Current liabilities**

Consist of the following:

- Trade and other payable of \$5,679,792 (\$4,586,145 as at December 31, 2023) which includes an amount of \$4,598,766 (\$3,982,922 as at December 31, 2023) to a subcontractor.
- Income taxes payable of \$Nil (\$28,193 as at December 31, 2023)
- Due to Directors of \$100,000 (\$100,000 as at December 31, 2023).
- Royalties payable of \$928,689 (\$667,418 as at December 31, 2023)

#### **Non-current liabilities**

Non-current liabilities totalling \$1,941,449 (\$1,831,559 as of December 31, 2023) representing due to directors, officers and a corporation owned by a director for \$1,068,006 (\$920,291 as at December 31, 2023), no lease liability (\$6,857 as at December 31, 2023) and royalties payable of \$873,443 (\$904,411 as of December 31, 2023).

#### **Equity**

For the year of 2024, the Company issued 396,000 units consisting of one common share and one warrant for settlements of accounts payable for the value of \$118,696, the Company issued 6,898,140 units consisting of one common share and one-half warrant for a value of \$1,483,100 for the reassertion of rights in the Novacium partnership agreement and issued 2,925,000 common shares following the exercise of options for a total amount of \$680,875 and 100,000 common shares following the exercise of warrants for a total amount of \$30,000.

#### **Working capital**

As at December 31, 2024, the Company had a cash flow of \$676,955 (\$597,404 for 2023).

#### **Operating activities**

The use of the Cash flow for operating activities of \$1,694,026 consists of a Net Loss of \$7,991,248 and non-cash items that have no cash flow impact of the cash flow of \$5,155,446. The sources the cash flows from working capital operating activities represents an amount of \$1,141,776 which comes from in increase in HST receivable of \$134,167, an increase in prepaid expenses and others of \$45,902, a decrease in Investment tax credits receivable of \$216,445, an increase in trade and other payables of \$1,133,593 as well as a decrease in income taxes payable of \$28,193.

#### **Investment activity**

The Cash flow provided by investing activities of \$1,096,515, consists of the disposal of investments for an amount of \$1,387,524, acquisition of investments for an amount of \$282,250 and additions to property and equipment of \$9,759.

**GENERAL DISCUSSION OF FINANCIAL INFORMATION FOR THE LAST QUARTER AND THE EXERCISE OF 2024 (continued)**

---

**Working capital (continued)**

**Financing activity**

The provide of the Cash flow for financing activity in the amount of \$672,809 includes the proceeds from exercise of options of \$680,875, the repayment of dues to directors of \$15,385. the repayment of lease liabilities of \$11,774 and issuance cost of 10,907. The Company increased its cash flow by \$74,298 during the period.

The Company's average cash requirements for future quarter are expected to be between \$450,000 and \$500,000 including research and development expenses and additions for property, plant and equipment and excluding the 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

---

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:

- 2024 and after, the highest between 10% of Si sales or \$250,000.

On June 30, 2021, the Company acquired intellectual property 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 and testing products (as defined in the agreement) generated from the exploitation of the acquired technology or the minimum amounts per the agreement does not exceed the total of sales. 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 remaining equity in HPQ Polvere. On May 29, 2024, PyroGenesis notified the company of its intention to convert its royalties into a number equal to the number of shares held by HPQ in the HPQ Polvere subsidiary.

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

Under Novacium's shareholders' agreement, the Company had the option to increase its stake in Novacium from 20% to 50% by paying in cash an amount of between €500,000 and €1,000,000 within 18 months of the start of operations of its affiliated company (Novacium S.A.S.). Subsequently, and no later than 7 years after the start of operations, the company could acquire the remaining 50% held by Novacium's co-founders, who had irrevocably committed to sell all of their shares to the company. The company did not exercise its option in the allotted time. In doing so, it could no longer proceed with future increases in participation. After negotiation with Novacium's other shareholders, the Company entered into an agreement on June 5, 2024 to recover its present and future rights in the Partnership Agreement. This agreement provides for negotiations between the Company and the other shareholders to, among other things, develop a new structure for the increase of its shareholding. Part of the new agreement has been implemented (Note 28).

The Company has committed to pay a monthly amount of €80,000 (\$119,850 CAD) to Novacium for research and development services, ending on June 30, 2025. The minimum required payments for the next fiscal year amount to €240,000 (\$719,100 CAD) in 2025.

On January 15, 2025, the Company settled a trade account payable of \$4,941,440 by the issuance of 17,968,873 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 \$0.285 per share for 24 months following the closing date of the transaction.

On January 29, 2025, the Company issued 1,083,333 units for the acquisition of a patent. Each unit consists of one common share and one-half of a warrant. Each warrant entitles its holder to acquire one common share of the Company at a price of \$0.315 per share for 48 months following the closing date of the transaction.

## **FINANCIAL COMMITMENTS, CONTINGENCIES AND SUBSEQUENT EVENTS (continued)**

---

On February 26, 2025, the Company issued 17,312,790 units for the acquisition of 84 shares of Novacium. Each unit consists of one common share and one warrant. Each warrant entitles its holder to acquire one common share of the Company at a price of \$0.25 per share for 48 months following the closing date of the transaction

On March 26, 2025, the Company issued 1,254,545 units for the acquisition of a patent. Each unit consists of one common share and one-half of a warrant. Each warrant entitles its holder to acquire one common share of the Company at a price of \$0.285 per share for 48 months following the closing date of the transaction

On April 30, 2025, the Company signed an amendment with the partners of Novacium following the agreement entered into on June 5, 2024 (Note 27). The partners agreed to the following:

- The option granted to HPQ under the October 26, 2021 agreement, allowing it to increase its ownership in Novacium up to 100%, is renewed.
- HPQ will retain this option for a period of four years from the date of this amendment.
- The parties acknowledge that, on February 26, 2025, HPQ increased its ownership in Novacium by 8.4%, bringing its total interest to 28.4%, in consideration for an amount of €2,500,000 paid through the issuance of HPQ common shares.
- HPQ commits to pay a monthly amount of €100,000 for research and development services starting July 1, 2025.

After to the end of the year, 1,000,000 stock options were exercised for a total amount of \$250,000 in cash and 100,000 warrants were exercised for a total amount of \$27,000 in cash.

## **CRITICAL ACCOUNTING POLICIES**

---

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**

---

At the date of authorization 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. Information on new standards, amendments and interpretations that are expected to be relevant to the Company's consolidated financial statements is provided below. Certain other 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 Presentation of financial statements**

The amendments relate to the classification of liabilities as current or non-current and include clarifications on classification (current or non-current).

### **IFRS 16 Leases – lease liability in case of sale and leaseback**

The amendments introduce a new accounting model that affects how a seller-turned-tenant accounts for variable lease payments resulting from a lease-back transaction.

### **IAS 7 Statement of cash flows & IFRS 7 Financial instruments: Disclosure – Supplier finance arrangements**

The amendments introduce new communication objectives for a company to provide information on its supplier financing agreements that would enable investors to assess the impact of these agreements on liabilities, cash flows and exposure to the company's liquidity risk. The new disclosure should also include the type and effect of non-cash changes in the book value of financial liabilities that are part of a funding agreement with a supplier.

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

---

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**

---

Financial Assets used by the Corporation consist of cash and royalties' receivable are 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 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.

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 December 31, 2024.

## **INFORMATION ON SHARE CAPITAL**

---

### **Information on financings**

On December 31, 2024, the Corporation had 377,615,828 shares issued and outstanding (367,296,688 as at December 31, 2023), 6,348,388 warrants (9,403,318 as at December 31, 2023), 50,454 brokers' warrants (50,454 as at December 31, 2023) and 14,810,000 options (17,735,000 as at December 31, 2023). The number of shares on a diluted basis is 398,824,670.

### **Information on outstanding shares**

As at May 2, 2025, the Corporation had 416,335,369 shares issued and outstanding, 42,698,989 warrants, 50,454 brokers' warrants and 14,810,000 options. The number of fully diluted shares is 473,894,812. The Corporation's share capital consists of an unlimited number of common shares with No Par Value.

## **RELATED PARTY TRANSACTIONS**

---

For the period ending on December 31, 2024, the sum of \$375,000 (\$375,000 on December 31, 2023) 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. During the year, the Company issued 6,898,140 units to the partners of Novacium for the reassertion of the rights in the partnership agreement in Novacium for a value of \$1,483,100. In addition, the Company acquired patents worth \$322,682 as at December 31, 2023 from the managers and shareholders of Novacium S.A.S.

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 an amount of \$609,646 due to officers and a corporation held by a director (\$186,452 as at December 31, 2023) and an amount of \$5,281 to officers and shareholders of Novacium S.A.S. (\$112,126 as of December 31, 2023).

The Corporation owes to Directors and Officers salaries and remuneration an amount of \$1,168,006. The Corporation has obtained confirmation that payment of an amount of \$1,068,006, under certain conditions, will not be demanded for a minimum of 12 months and one day after December 31, 2024.



## **RISK FACTORS**

---

### **Uncertainties about process technology on a commercial basis**

The Company's *PUREVAP<sup>TM</sup>* QRR silicon manufacturing 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'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 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.

## **RISK FACTORS** (continued)

---

### **Dependence on technology** (continued)

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 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.

## **RISK FACTORS** (continued)

---

### **Risks associated with the future sale of products.** (continued)

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 of future demand for materials produced using its fumed silica manufacturing process, silicon-based battery anode materials, and RRQ PUREVAP™ silicon. It is also developing forecasts for the potential demand for its stand-alone hydrogen reactors and for its waste-to-energy technology. This information is forward-looking in nature, and no assurance can be given that it will occur.

These estimates are based on current plans and various assumptions that are subject to change, including: facility construction costs and production costs; the Company's ability to maintain and increase its production levels; the adequacy of its infrastructure; the performance of its workforce and equipment; its ability to obtain and maintain the required permits; as well as its compliance with current or future laws and regulations.

Actual production could differ materially from forecasts for a variety of reasons, including: fluctuations in the purchase price of raw materials; natural phenomena such as adverse weather conditions, water availability, flooding or seismic activity; as well as unforeseen labour shortages, strikes, or opposition or blockades from local communities where manufacturing units could be located.

Failure to meet the guidance could adversely affect the Company's cash flows, revenues, results of operations and future financial condition.

### **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 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, 2022, 2023 and 2024. 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.

## **RISK FACTORS (continued)**

---

### **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 \$676,955 and \$597,404 respectively as of December 31, 2024 and 2023. During the year ended December 31, 2024 and 2023, the Company recorded negative cash flow from its operating activities of \$1,694,026 and \$1,264,206, respectively. For the exercise ending December 31, 2024 and 2023, the Company had a current liability of \$6,716,545 and \$5,393,775. For the exercise ending December 31, 2024 and 2023, the Company had an average monthly cash expense rate of approximately of \$260,000 and \$429,000 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 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 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.

## **RISK FACTORS (continued)**

---

### **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.

## **RISK FACTORS** (continued)

---

### **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.

## **RISK FACTORS (continued)**

---

### **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, May 2, 2025