



HPQ SILICON RESOURCES INC.

MANAGEMENT DISCUSSION AND ANALYSIS

For the year ended December 31, 2021

INTRODUCTION

This management discussion and analysis (“MD&A”), prepared as at April 29, 2022, contains information as at December 31, 2021 and should be read in conjunction with the Financial Statements for the year ended December 31, 2021 of HPQ Silicon Resources 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.

HPQ Silicon Resources 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”. On December 23, 2021, the Company submitted its application to the TSX Venture Exchange (“TSX-V”) to change the classification of its activity from mining tier 2 to Industrial, technology & life science tier 1. HPQ Silicon’s Head Office is located at 3000, Omer-Lavallée Street, Suite 306, Montréal, Québec, Canada, H2Y 1R8.

The Corporation regularly presents supplementary information on its activities which are filed on SEDAR (www.sedar.com).

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 mining industry in general and the economic environment 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 statement 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.

CAUTIONARY NOTE REGARDING FORWARD LOOKING STATEMENTS (continued)

Many risks exist which could render these Forward Looking Statements erroneous such as the price movements in the metals markets, the fluctuations in the foreign exchange and interest rate, of under or over estimated reserves, environmental risks (ever increasing regulations), unforeseen geological situations, negative extraction conditions, changes in government regulations and policies, the inability to obtain the needed patents, permits and government approvals, First Nations issues, or any other risk tied to exploration and development.

The Corporation's ability to continue its operations is subject to securing additional financings needed to continue the exploration of its mineral properties and to the continuous support of 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.

NATURE OF ACTIVITIES

The Corporation's activities are centred on: a) developing the *PUREVAP™ "Quartz Reduction Reactor" (QRR)* (patent granted in the United States and pending in other jurisdictions), a new green and low-cost process that will allow HPQ to transform Quartz (SiO₂) into Silicon Metal (Si), b) developing the *PUREVAP™ "Nano Silicon Reactors" (NSiR)* (patent pending), a new process that will allow HPQ to go higher up into the Silicon value chain, by transforming the Silicon produced by the *PUREVAP™ QRR* into the Silicon nanomaterials that batteries and Electric Vehicle ("EV") manufacturers are looking for, and c) developing a new plasma-base process that will allow a direct Quartz to Fumed silica transformation, removing the usage of hazardous chemical in the making of Fumed silica and eliminating the Hydrogen Chloride Gaz (HCl) associated with its manufacturing.

To date HPQ Silicon hasn't: determined if the Quartz mineral properties it is currently exploring contain mineral reserves which could be extracted profitably; if it will be able to secure the needed financing to continue the development of its exploration assets, completed the development of its technologies needed to start commercial production, or determined whether it will realize profits from the sale of such assets.

OVERALL PERFORMANCE DURING 2021

- On December 23, 2021, the Company submitted its application to change its classification from mining tier 2 to Industrial, Technology and Life Science, tier 1, on the TSX Venture Exchange.
- On December 21, 2021, HPQ announced that it had secured, with a Quebec-based supplier, the procurement, and January 2022 delivery, of the high purity quartz material.
- On December 8, 2021, the Company issued an update on the ongoing validation of the EBH₂ technology by a team of two (2) PhD's with more than 30 years of experience. The testing scope was limited by mechanical problems, but it did confirm enough positive aspects about the technology and its potential.

OVERALL PERFORMANCE DURING 2021 (continued)

- During November 2021, the United States Patent and Trademark Office issued a notice of allowance to HPQ SILICON RESOURCES INC regarding the patent application titled "SILICA TO HIGH PURITY SILICON PRODUCTION PROCESS".
- On October 5, 2021, the Board of Directors of the Company approved to increase the maximum number of shares that may be issued under the plan to 22,000,000 shares. On December 20, 2021, the Company has granted 14,985,000 stock options at an average exercise price of \$ 0.71 per share for an average period of 3 years to members of the board, officers, and a consultant.
- On September 29, 2021, the Company announced that the TSX Venture Exchange has given its approval to the EBH₂ Systems SA transaction, and as a result HPQ has closed the MOU entered into. The Company also announced that it intends to change its classification from mining issuer to Industrial, Technology and Life Science issuer as required by the TSX-V approval of the EBH₂ transaction. As a result, HPQ committed to:
 - Submit, by the latest December 31, 2021, an application to the TSX-V to change classification from being a mining issuer to an Industrial, Technology & Life Science Issuer.
 - Seek shareholder approval of the change of classification request by the latest 15 months from June 17, 2021.
- On August 24, 2021, HPQ announced the signature of a Memorandum of Understanding ("Agreement") with EBH₂ Systems SA, a Swiss company that possesses a proprietary electrolysis technology that can efficiently extract from virtually any water source including salt water, a Clean Hydrogen also called Green Hydrogen that can be used to create low-cost electricity with no environmental impact.
- On August 18, 2021, HPQ announced that, after all the COVID related delays, the *GEN3 PUREVAP™* Quartz Reduction Reactor ("QRR") power supply, the final missing component, has shipped from the manufacture and is on route to PyroGenesis production facility in Montreal.
- On August 5, 2021, HPQ announced, through its wholly – owned subsidiary, HPQ NANO, that the *GEN1 PUREVAP™* Nano Silicon Reactor ("NSiR") has produced its first batch of Nano Silicon Materials.
- For the third quarter ending September 30, 2021, the Company paid \$ 54,472 in patent related expenses and \$ 393,677 for equipment under construction.
- For the third quarter ending September 30, 2021, 2,360,47100 common shares were issued following: the exercise of 240,000 warrants, the exercise of 1,100,000 options and 50,091 commons shares for debt settlement. For an amount totaling \$ 682,500, the weighted average cost of the issued shares was \$ 0.29 per share.
- On June 29, 2021, 16,817,708 shares were issued to Investissement Quebec for the conversion of a \$1,8 million convertible debenture and \$276,984 of interests due of total nominal value of \$ 2,076,984. In additions another \$2,325,000 was raised with the 15,000,000 warrants exercise.
- On June 10, 2021, HPQ announced that the *GEN3 PUREVAP™* Quartz Reduction Reactors (QRR) pilot plant project is transitioning from the assembly phase to the commissioning and testing phases of the program and that the start of the *GEN3 PUREVAP™* QRR will be during Q4 2021.

OVERALL PERFORMANCE DURING 2021 (continued)

- On May 26, 2021, HPQ announced that HPQ, PyroGenesis, and the Énergie Matériaux Télécommunications Centre (ETM) of the Institut national de recherche scientifique (INRS) have set up a research project focused on the development of silicon (Si)-based materials as active anode materials for Lithium-ion batteries ("Li-ion").
- On May 4, 2021, HPQ announced that, with PyroGenesis, they were actively evaluating the commercial opportunity of developing a plasma process that could convert Silica (Quartz, SiO₂) into Fumed Silica (Pyrogenic Silica) in one step.
- On February 25, 2021, HPQ announced that it has received the TREKHY® system, a portable hydrogen-based mini-power generator, jointly developed by the French companies Apollon and Pragma Industries SAS ("Pragma"). HPQ signed a Memorandum of Understanding with Apollon and Pragma to study the commercial potential of the TREKHY® autonomous power generator in Canada.
- On February 4, 2021, HPQ announced the sixth renewal of its agreement with Apollon. The duration of the renewal period was until June 30, 2021.
- On January 21, 2021, HPQ announced, through its wholly – owned subsidiary, HPQ NANO, the milestones achieved during ongoing Gen1 PUREVAP™ NSiR commissioning tests conducted by technology provider PyroGenesis.
- During the year ended December 31, 2021, the Company paid \$ 205,289 in patent related expenses, \$ 458,533 for equipment under construction, \$ 3,300,000 for Intellectual property acquisition and \$ 213,754 to Apollon Solar for consulting work.
- During the year ended December 31, 2021, 38,455,000 common shares were issued following the exercise of warrants. The weighted average share price at the exercise was \$0.153 per share.
- During the year ended December 31, 2021, 5,700,000 common shares were issued following the exercise of share-based payments. The weighted average share price at the exercise was \$0.29 per share.

SUMMARY OF CURRENT ASSETS AND EXPLORATION WORK

- As at December 31, 2021, the Corporation held cash in an amount of \$ 2,672,696, \$ 666,000 in marketable securities in a quoted company, \$ 645,981 in Goods and Services tax receivables, \$ 50,000 in investment tax credits receivable, \$ 200,000 in exploration and evaluation assets held for sale and \$ 176,229 in prepaid expenses and other.
- For the period ended December 31, 2021, HPQ did not perform any exploration work on the properties.

EXPLORATION ACTIVITIES AND PROJECTS

QUARTZ/SILICON

PROJECT: RONCEVAUX

The Roncevaux property is made-up of 27 map designated cells (“CDCs”) covering a total of 2,068 ha in 2 blocks. The main block covers some 24 CDCs for a total area 1,895.76 hectares and is host to the Roncevaux quartz vein occurrence. The second block consists of 3 CDCs covering 172.40 hectares some 2.2 km north of the main block. The property is in the Matapedia region of Gaspé about 75 km south of Causapscal.

The Roncevaux Project lies within the southern domain in the central portion of the Connecticut Valley-Gaspé synclinorium. It is bound to the north by the Shickshock-South fault and to the south by the Restigouche fault. This basin is filled with fine to very coarse-grained siliciclastic rocks, various types of limestones, felsic to mafic volcanic and intrusive rocks. The rocks of the Roncevaux vein area belong to the Fortin Group and the few outcrops visited by the INRS-EET technical team in September 2015, were made-up of sandstones and siltstones with lesser units of shales and mudstones. The rocks are folded faulted and fractured. Bedding (So) appears sub-vertical (85o) with an average strike of N231o.

During the last quarter of the year of 2017, the Corporation completed a 2,000 meters diamond drilling program. This program consisted in 32 holes, each to a depth of 50 m, along the known 400-meter Quartz outcrop. Assays and characterization tests will be undertaken on the drill cores.

During the year 2018, the Corporation granted to Beauce Gold Fields Inc. the Roncevaux Specific Mining and exploration rights except for Quartz in exchange for 100,000 shares at a deemed price of \$ 0.10 each and a 5% NSR. Up to 4% of this royalty can be bought back by paying \$ 100,000 for each 0.10% NSR up to a maximum of \$4 million.

During the period of 2021, the Corporation did not perform any exploration work and recorded an impairment charge of \$ 1,164,595 for the property. The property is classified as held for sale as a result on the Company's change in classification from mining issuer to industrial, technology, or life science issuer.

PROJECT: MARTINVILLE

The Martinville Property (the “Property”) is in the Eastern Townships 180 km east of Montreal and 30 km south of Sherbrooke. Private forests and small farms mostly cover the region. The property consists of 4 claims of which an area of 2.42 km² is available for exploration. The initial 2 Claims cover the area where the exploration work has been carried out and they host quartz veins that were historically worked on.

The quartz is made up of Schist encased hydrothermal quartz veins. A 1995 geophysical survey shows an exploration potential of more than 1,000,000 tonnes SiO₂ using a surface length quartz vein of 200 m, averaging 2 to 23 meters in width while assuming a depth of up to 30 m (GM53696 : Pierre Vincent, “géosciences de l’établissement” 1995). While pertinent this data is non-NI 43-101 compliant.

During the last year the 2019, the Corporation did not perform any exploration work and recorded an impairment charge of \$ 262,565 for the property. The property is classified as held for sale as a result on the Company's change in classification from mining issuer to industrial, technology, or life science issuer.

HIGH PURITY QUARTZ/SILICON

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.

EU and Australia declared Silicon a critical raw material as a wide range of modern technologies depend on it to make various numbers of industrial and consumer products. Silicon (Si) demand is expected to reach 3.8 million tonnes, worth > US\$ 10 billion by 2025 (Source CRU).

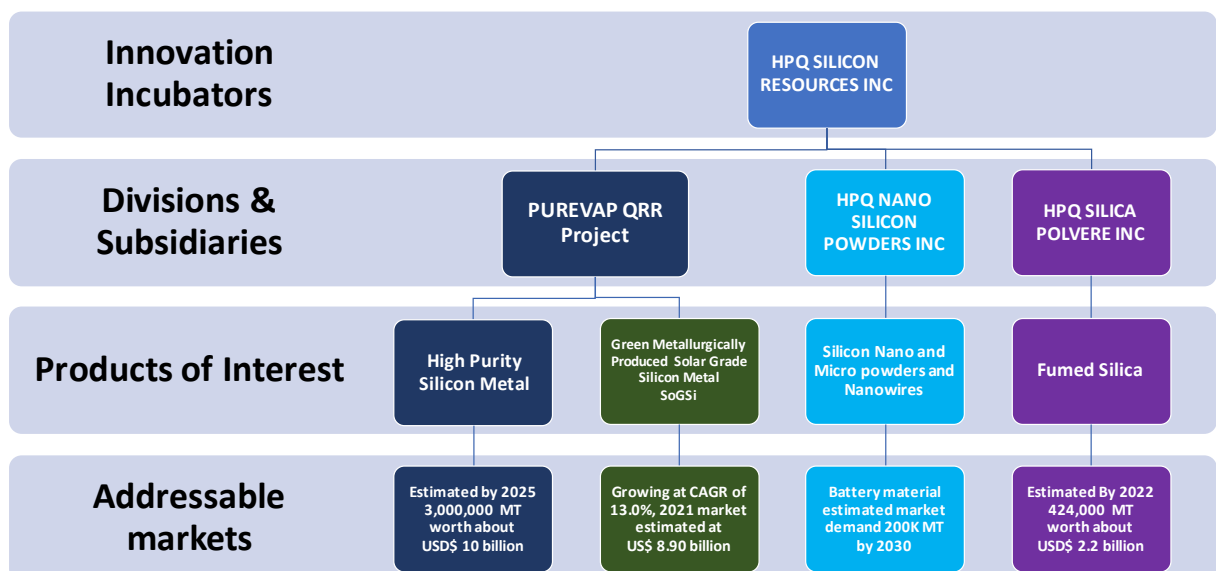
Environmental, Social and Corporate Governance ("ESG") aspect of Silicon manufacturing and its transformation are becoming crucial factors for end users as Silicon is also one of today's key strategic materials needed for the decarbonization of the economy and the Renewable Energy Revolution ("RER").

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

- To extract it commercially from Quartz (SiO₂) an expensive & energy intensive carbothermic process, first invented in 1899, is still used,
- Depending on final application, (Solar, Electronics, Batteries) Chemical grade Silicon (99.5% Si) must either be purified & or engineered

This is why HPQ Strategic Silicon Solution initiatives are focused on proposing innovative silicon (Si)-based solutions all the while developing a unique portfolio of high value-added silicon (Si) and Silica (SiO₂) products sought after by battery and electric vehicle manufacturers. The goal being able to deliver to market high value speciality Silicon and Silica products using technologies that will reduce energy consumption, GHG's, and carbon footprint.

HPQ value proposition is develop and monetize Silicon and Silica initiatives following the development axes presented in the flow chart below:



HIGH PURITY QUARTZ/SILICON (continued)

Working with PyroGenesis Canada Inc, (“PyroGenesis”) a high-tech company that designs, develops, manufactures, and commercializes plasma – based processes, HPQ is developing:

1. The *PUREVAP™ “Quartz Reduction Reactors” (QRR)*, an innovative process (patent granted in the United States and pending in other jurisdictions), which will permit the one-step transformation of quartz (SiO_2) into high purity silicon (Si) at reduced costs, energy input, and carbon footprint that will propagate its considerable renewable energy potential.
2. Through its 100% owned subsidiary, HPQ NANO Silicon Powders Inc., the *PUREVAP™ Nano Silicon Reactor (NSiR)* is a new proprietary process that can use material produced by the QRR as feedstock, to make a wide range of nano/micro spherical powders of different sizes and nanowires.
3. Through its second 100% owned subsidiary, HPQ Silica POLVERE Inc., HPQ is developing a new plasma-based process that will allow a direct Quartz to Fumed silica transformation, removing the usage of hazardous chemical in the making of Fumed silica and eliminating the Hydrogen Chloride Gas (HCl) associated with its manufacturing.

HPQ as a technology development company, is interested in developing hydrogen-based ventures that could be complementary to the *PUREVAP™* efforts. Currently, HPQ is evaluating two different approaches to reach this goal, those being:

1. Working with Swiss based company EBH2 Systems SAS as it pertains to their proprietary process to manufacture Green Hydrogen via electrolysis, and
2. Developing our own processes of making hydrogen via hydrolysis of nanosilicon materials made by our *PUREVAP™ (NSiR)*.

Below you will find a summary of the latest progress achieved during fiscal 2020 and subsequent period on our ongoing development of our *PUREVAP™* project:

On April 5, 2022, HPQ announced that the *PUREVAP™ QRR* commissioning is about 95% completed to date and that the expected commissioning should be completed in a few weeks. Following that the final phase of the pilot plant testing program will start therefore allowing the validation and quantification of the *PUREVAP™ QRR* disruptive advantages.

On March 9, 2022, HPQ announced that the United States Patent and Trademark Office issued U.S. Patent No. 11,267,714 entitled “SILICA TO HIGH PURITY SILICON PRODUCTION PROCESS” to HPQ SILICON RESOURCES INC on March 8, 2022.

On February 8, 2022, HPQ announced the signature of a non-disclosure agreement (“NDA”) with a world leading high-performance material company for the purposes of using the 4N silicon (Si) material to be produced by the *PUREVAP™ Quartz Reduction Reactor (QRR)* pilot plant as feedstock to make silicon nitride (Si_3N_4) ceramics.

On January 12, 2022, HPQ, through its wholly – owned subsidiary HPQ Nano Silicon Powders inc (“HPQ NANO”), updated shareholders on advancements of the *PUREVAP™ Nano Silicon Reactor (“NSiR”)* development project led by technology provider, PyroGenesis. Key takeaway being that, as expected with ground-breaking R&D projects, the PyroGenesis engineering team continued to resolve design and process issues encountered during Phase 1 of the *PUREVAP™ NSiR* development program.

HIGH PURITY QUARTZ/SILICON (continued)

On December 21, 2021, HPQ announced that it had secured, with a Quebec-based supplier, the procurement, and January 2022 delivery, of the high purity quartz material needed to operate the *GEN3 PUREVAP™* Quartz Reduction Reactor (“*QRR*”) Pilot Plant.

On December 8, 2021, HPQ issued an update on the ongoing validation of the EBH₂ technology. A validation team, two (2) PhD’s with more than 30 years practical experience in the field of renewable energy and with first-hand experience developing hydrogen processes, have completed the first round of testing. The tests confirmed that the EBH₂ Green Hydrogen Reactors (EBH₂ GHR) uses low voltage to power electrolyzers that generate a H₂ + O₂ gas mixture fuels that can be used to power a generator or any kind of fuel system to produce electricity. The testing scope was limited by mechanical equipment issues, but it did confirm enough positive aspects about the technology and its potential, including hydrogen generation, that it was deemed to be in the best interest of HPQ to keep its exclusive options with EBH₂ open until further validation tests are completed.

During November 2021, the United States Patent and Trademark Office issued a notice of allowance to HPQ regarding the patent application titled “SILICA TO HIGH PURITY SILICON PRODUCTION PROCESS”, the final step before a patent is official issued.

On October 21, 2021, HPQ announced that, after all delays related to COVID-19, the last missing component, the power supply, has been delivered to PyroGenesis’ facility in Montreal. PyroGenesis has begun the commissioning of the *GEN3 PUREVAP™* Quartz Reduction Reactor (“*QRR*”) Pilot Plant.

On September 29, 2021, HPQ announced that the TSX Venture Exchange (“*TSX-V*”) has given its approval to HPQ transaction with EBH₂ Systems SA, (“*EBH₂*”) announced on August 24, 2021, and following that approval, HPQ has closed the MOU entered into with EBH₂ Systems SA on August 24, 2021. HPQ and EBH₂ can now focus on the next milestone, third-party validation of the EBH₂ technology, expected to take place during the next 60 days. A first step was done by the signing of a perpetual world-wide license granted by EBH₂ to HPQ to sell products where EBH₂ Green Hydrogen Reactors (EBH₂ GHR) are incorporated into any HPQ Technologies.

The salient points of the agreement are:

1. HPQ will be granted by EBH₂ a perpetual world-wide license to sell products where EBH₂ generators are incorporated into all HPQ Technologies, if the EBH₂ generators are used exclusively to autonomously power HPQ Technology or HPQ Technologies. (“*The HPQ-EBH₂ Bundle License*”).
2. HPQ and EBH₂ agree to establish a new 50/50 joint enterprise (NEWCO) that will be responsible to market, sell and service EBH₂ systems and products in North America. NEWCO will be granted by EBH₂ a perpetual exclusive licence to market, sell and service EBH₂ systems and products in North America. (Canada, Mexico, and the United States of America). HPQ will set up NEWCO as a Canadian corporation, with both HPQ and EBH₂ having fifty percent (50%) shareholding.
3. OPTION TO ACQUIRE HPQ EQUITY STAKE IN NEWCO. HPQ agrees that starting 5 years, but not exceeding 10 years, from the date of the receipt of the first Commercial shipment of EBH₂ systems ready for sales in North America by NEWCO, EBH₂ can at any time and at its sole discretion, elect to buy HPQ equity stake in NEWCO by exchanging HPQ Equity stake in NEWCO for a perpetual eight percent (8%) royalty, on the gross sales of NEWCO (“*HPQ ROYALTY*”), royalty that shall be paid monthly, the 15th day of each month for the gross sales made in the previous month.

HIGH PURITY QUARTZ/SILICON (continued)

4. ACQUISITION COST. HPQ agrees to pay EBH₂ the HPQ-EBH₂ Bundle License in accordance with the payment schedule and terms set forth below:
- a. HPQ will make a cash payment to EBH₂ of Five Hundred Thousand US dollars (US\$ 500,000) (“The Cash Component of the transaction”),
 - b. HPQ will issue to EBH₂ of 10,000,000 units (“Unit”) at a price of C\$0.70 Per Unit. (“The Equity Component of the transaction”). Each Unit is comprised of one (1) common share and one (1) common share purchase warrant (“Warrant”) of HPQ. Each Warrant will entitle EBH₂ to purchase one common share of the capital stock of HPQ at an exercise price of \$ 0.75 for a period of 36 months from the date of closing of the Transaction. Each common share issued pursuant to the Units will have a mandatory four (4) month and one (1) day holding period from the date of its issuance. The Equity Component of the transaction is subject to TSX Venture Exchange and to standard regulatory approvals.
5. SCHEDULE OF PAYMENTS. EBH₂ agrees that both the Cash Component of the transaction and the Equity Component of the transaction will be paid after an independent third-party has validated that the EBH₂ process works and can be scaled up to meet the energy requirement of HPQ Technologies, based on the following milestones:
- a. An independent third-party, chosen by the Parties, will be mandated to confirm that the EBH₂ travel demonstration module can generate 1,000 Watts per hour (1 Kw per hour), 24 Kw per day, 168 Kw or 0.17 Mw of energy over 7 days from 1 litre of water (H₂O). Upon receipt of confirmation that the production and other milestones has been met, the Cash Component of the transaction will be paid to EBH₂ and 5,000,000 units of the Equity Component of the transaction will also be issued to EBH₂.
 - b. An independent third-party, chosen by the Parties will be mandated to confirm that the EBH₂ system can be scaled up to meet the energy requirement of HPQ Technology. Upon receipt of a confirmation that the production and other agreed milestones have been met, 4,000,000 units of the Equity Component of the transaction will also be issued to EBH₂.
 - c. Upon a successful demonstration that a EBH₂ system can produce the energy required to power up HPQ PUREVAP™ QRR pilot plant, the remaining 1,000,000 units of the Equity Component of the transaction will be issued to EBH₂.

On September 29, 2021, HPQ also announced that it intends to change its classification from mining issuer to Industrial, Technology and Life Science issuer as required by the TSX-V approval of the EBH₂ transaction. As a result, HPQ committed to:

- Submit, by the latest December 31, 2021, an application to the TSX-V to change HPQ classification from being a mining issuer to an Industrial and Technology Issuer.
- Seek shareholder approval of the change of classification request by the latest 15 months from June 17, 2021.

On August 24, 2021, HPQ announced the signature of a Memorandum of Understanding (“Agreement”) with EBH₂ Systems SA, a Swiss company that possesses a proprietary electrolysis technology that can efficiently extract from virtually any water source including salt water, a Clean Hydrogen also called Green Hydrogen that can be used to create low-cost electricity with no environmental impact.

HIGH PURITY QUARTZ/SILICON (continued)

On August 18, 2021, HPQ announced that, after all the COVID related delays, the *GEN3 PUREVAP™* Quartz Reduction Reactor (“*QRR*”) power supply, the final missing component, has shipped from the manufacture and is on route to PyroGenesis production facility in Montreal.

On August 5, 2021, HPQ announced, through its wholly – owned subsidiary, HPQ NANO, that the *Gen1 PUREVAP™ Nano Silicon Reactor (“NSiR”)* has produced its first batch of Nano Silicon Materials.

On July 6, 2021, HPQ announced, that its new wholly – owned subsidiary HPQ Silica Polvere Inc (“HPQ POLVERE”) and PyroGenesis signed, before the end of the second quarter, a development agreement covering the *FUMED SILICA REACTOR* industrial pilot plant development program and the future commercialization of fumed silica materials made with this newly developing green, proprietary and low-cost manufacturing process.

The new plasma-based process allows a direct Quartz to Fumed silica transformation, removing the usage of hazardous chemical in the making of Fumed silica and eliminating the Hydrogen Chloride Gas (HCl) associated with its manufacturing. Furthermore, the process requires 15,000 kWh to produce a MT of Fumed Silica, this represents a staggering 86% reduction in the energy footprint associated with manufacturing Fumed Silica. Finally, since the new process uses Quartz as feedstock, its capital requirements will only be a small fraction of what is required to build a traditional Fumed Silica plant.

The key areas covered by the agreement between HPQ POLVERE and PyroGenesis are:

1. *FUMED SILICA REACTOR 50 MT per Year* industrial pilot plant development program, schedule and cost assumed by HPQ POLVERE,
2. Acquisition of the *FUMED SILICA REACTOR PROCESS* Intellectual Property as it relates to the manufacturing of Fumed Silica by HPQ POLVERE,
3. Revenue distribution between HPQ POLVERE and PyroGenesis from the sales of Fumed Silica materials made with the *FUMED SILICA REACTOR PROCESS*.

The *FUMED SILICA REACTOR* industrial pilot plant development program is made of three phases.

1. Completing the engineering related to the fabrication of the pilot plant,
 - a. To be started by December 1st, 2021,
 - b. HPQ POLVERE contribution to this phase of the program is \$109,433,
2. Completing the fabrication, assembly, and Installation of the Pilot plant
 - a. To be completed by July 15, 2023,
 - b. HPQ POLVERE contribution to this phase of the program is \$207,046,
3. Completing the commissioning, start-up, and operation of the Pilot Plant,
 - a. This Phase is schedule to start on July 16, 2023 and run until March 1, 2024.
 - b. HPQ POLVERE contribution to this phase of the program is \$284,021

The agreement also covers HPQ POLVERE acquisition of the intellectual property rights to the Fumed Silica Reactor Process as it relates exclusively to the production of Fumed Silica (Pyrogenic Silica) (the “Field”) from PyroGenesis. The acquisition cost of the Fumed Silica Reactor Process IP is CAD\$3,300,000.

HIGH PURITY QUARTZ/SILICON (continued)

PyroGenesis will retain a royalty-free, exclusive, irrevocable worldwide license to use the process for purposes other than the production of Fumed Silica (Pyrogenic Silica). Should PyroGenesis be approached by any other parties for any research and development or commercial purposes outside of the Field, HPQ POLVERE shall have a right of first refusal, provided that, however, HPQ POLVERE exercise its right of first refusal within thirty (30) days of PyroGenesis receiving a bona-fide offer.

As with all our other transactions with PyroGenesis, HPQ POLVERE agrees to pay PyroGenesis, on an annual basis, a minimum royalty (Pyrogenic Silica Royalty), with PyroGenesis being granted the right to convert, at any time and at its sole discretion, its Royalty into a 50% equity stake in HPQ POLVERE.

As a result of this, HPQ POLVERE agrees to pay PyroGenesis, on an annual basis, and until conversion, the following minimum royalty (Pyrogenic Silica Royalty), on the gross sales of Pyrogenic Silica, excluding samples and testing products, produced with any Systems incorporating the Reactor and Process IP and/or the Optioned Rights:

- a) For 2023, the greater of 10% of HPQ POLVERE gross sales or fifty thousand Canadian dollars (CDN\$50,000),
- b) For 2024, the greater of 10% of HPQ POLVERE gross sales or one hundred thousand Canadian dollars (CDN\$100,000),
- c) For 2025, the greater of 10% of HPQ POLVERE gross sales or one hundred and fifty thousand Canadian dollars (CDN\$150,000),
- d) For 2026 and beyond, the greater of 10% of HPQ POLVERE gross sales or two hundred thousand Canadian dollars (CDN\$200,000).

On June 30th, 2021, HPQ opted not to renew for a seven time its collaboration agreement with Apollon Solar Sa.

On June 10, 2021, HPQ announced that the GEN3 PUREVAP™ Quartz Reduction Reactors (QRR) pilot plant project is transitioning from the assembly phase to the commissioning and testing phases of the program and that the start of the GEN3 PUREVAP™ QRR is tentatively schedule for Q4 2021.

On May 26, 2021, HPQ announced that HPQ, PyroGenesis, and the Énergie Matériaux Télécommunications Centre (ETM) of the Institut national de recherche scientifique (INRS) have set up a research project focused on the development of silicon (Si)-based materials as active anode materials for Lithium-ion batteries ("Li-ion").

- With a budget of \$500,000, the project is jointly funded by the Ministère de l'Économie et de l'Innovation via PRIMA Québec (40%), the Natural Sciences and Engineering Research Council of Canada (NSERC) (40%), HPQ Silicon Resources Inc. (10%) and PyroGenesis Canada Inc. (10%)
- HPQ and PyroGenesis will be responsible for the production of silicon materials from the PUREVAP™ Quartz Reduction Reactor (QRR) and the PUREVAP™ Nano Silicon Reactor (NSiR). The INRS-EMT will be responsible for the characterization of the materials and the optimization of the electrode formulations at laboratory scale

HIGH PURITY QUARTZ/SILICON (continued)

On May 4, 2021, HPQ announced that, with PyroGenesis, they were actively evaluating the commercial opportunity of developing a plasma process that could convert Silica (Quartz, SiO₂) into Fumed Silica (Pyrogenic Silica) in one step. This new process is a natural evolution from PyroGenesis' unique plasma-based processes and would be a low-cost and environmentally friendly option. As conceived, the process is expected to eliminate the harmful chemicals presently generated by traditional flame pyrolysis of silicon tetrachloride that are currently used to make fumed silica.

On April 22, 2021, HPQ announced, through its wholly – owned subsidiary, HPQ NANO, the next milestones achieved during ongoing *Gen1 PUREVAP™ NSiR* commissioning tests conducted by technology provider PyroGenesis.

The ongoing tests are crucial as they allow PyroGenesis to progress on the project while identifying and resolving normal R&D issues systematically. The main segments of the ongoing process validation and optimization tests can be summarized as follows:

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

Key take away from these latest results were center around the production rate of the process. NSiR test bed work results to date leads us to conclude that the *Gen2 NSiR* semi-continuous proof of commercial scalability system will be able to have an ultimate monthly increased production rate of 500 kg/month (or about 6 MT/year) of nano silicon powders or nanowires. This is substantially greater than the originally stated 300 kg/month (or about 3,5 MT/year).

Since the start of the testing program, we have demonstrated the following positive results from the *PUREVAP™ NSiR* process:

1. Production of nano silicon powders of less than 150 nm, the threshold above which silicon fracturing occurs.
 - a. Further efforts will focus on improved measures and control the size distribution of our material, a critical criterion for battery manufacturers.
2. Production rate achieved exceeded the original goal.
 - a. Continuous process improvements to further increase the production capacity, and thereby reducing future commercial production cost.

Once the final equipment modifications are completed, the goal of the program will be to produce qualified samples which will then be tested by a third-party, the Institut National de Recherche Scientifique (INRS), and subsequently to awaiting battery manufacturers and automobile manufacturers.

On February 4, 2021, HPQ announced the sixth renewal of its agreement with Apollon to continue developing nanoscale and porous silicon materials for energy storage, hydrogen production and high value-added applications. The duration of the renewal period, until June 30, 2021.

On January 21, 2021, HPQ announced, through its wholly – owned subsidiary, HPQ NANO, the milestones achieved during ongoing *Gen1 PUREVAP™ NSiR* commissioning tests conducted by technology provider PyroGenesis.

HIGH PURITY QUARTZ/SILICON (continued)

Key take away from these first results, the material produced, under the less than optimum operating conditions of the first commissioning tests, was analysed by scanning electron microscope (SEM) imaging combined with X-ray diffraction (XRD) and yielded the following information:

- Gen1 NSiR system performance exceeded design and modelling expectations:
 - > Successfully produced sub 100 nm silicon - based spherical nanopowders & nanowires.
 - > Computer models suggested that the size limit of the material produced would be between 100 nm and 200 nm.
- SEM-XRD analysis indicates that the < 100 nm Si base spherical nanopowders & nanowires material could be used as anode material for Li-ion batteries, combined with graphite or not.
- Samples from these commissioning tests have been sent to Professor Lionel ROUÉ of the Centre Énergie Matériaux Télécommunications (EMT) for electro-chemical evaluation.
- Using results from data collected during these preliminary tests, PyroGenesis technical team are improving the design of the system and the operational parameters of the reactor.

On December 29, 2020, HPQ announced that promising results from electrochemical performance tests made with silicon-based by-products manufactured by the *GEN2 QRR* motivated the company to file a provisional patent application regarding their manufacturing, assembly and usage as anode materials for Lithium-ion batteries.

- Although preliminary, the results obtained are more than promising since the silicon-based by-product made with the *Gen2 PUREVAP™ QRR* maintained a gravimetric capacity $\geq 1,200$ mAh/g for more than 100 charge/discharge cycles, a capacity 3-4 times greater than that of graphite currently used in commercial Li-ion batteries.
- The patent application follows the completion of a series of tests made on the material produced by the *GEN2 PUREVAP™ QRR* at the Centre Énergie Matériaux Télécommunications (EMT) of the INRS by Professor Lionel ROUÉ under an NSERC Engage Grant and a NSERC Engage plus Grant.

On December 17, 2020, HPQ announced, through its wholly – owned subsidiary, HPQ NANO, that technology provider PyroGenesis had informed HPQ NANO that phase 1 of the Gen1 PUREVAP™ NSiR development program has reached the commissioning stage.

On November 19, 2020, HPQ announced that Apollon has delivered a first batch of carbon coated nano silicon powders to Professor Lionel Roué team at the Institut National de la Recherche Scientifique (INRS) for evaluation.

On November 5, 2020, HPQ announced, through its wholly – owned subsidiary, HPQ NANO, that technology provider PyroGenesis updated HPQ NANO on the following PUREVAP™ NSiR development program milestones:

Process and mechanical engineering designs for the Gen1 PUREVAP™ NSiR have been completed, on time and on budget.

GEN1 fabrication will start in the week starting November 9, 2020, and that project is on schedule for a December 2020 commissioning and start.

HIGH PURITY QUARTZ/SILICON (continued)

On October 22, 2020, HPQ, through its wholly owned subsidiary, HPQ Nano announced that a major automobile manufacturer that demonstrated an interest in the Spherical Nano Silicon powders to be produced by the *PUREVAP™ NSiR* (Sept. 30, 2020, release) has submitted to HPQ NANO a formal Purchase Order for the material. This represent HPQ NANO first ever nanopowders order. The manufacturer is well aware that HPQ NANO will only fulfill once the system is operational and, as such, this order is simply a way for them to guarantee to be first in queue for the material. The automobile manufacture's name shall remain anonymous for competitive and confidential reasons.

On September 17, 2020, HPQ announced the extension, until December 31, 2020, of the Development Agreement signed with Apollon in 2017. This fifth renewal will be focused on extremely promising venues for both the renewable energy sector and the decarbonization of the economy, mainly:

1. **Energy Storage** development of a new generation of Lithium-ion batteries made using Porous Silicon manufactured by the transformation of HPQ *PUREVAP™ Quartz Reduction Reactor "QRR"* Silicon (Si) with Apollon patented process;
2. **Clean Renewable Hydrogen Production** using Apollon Solar Gennaio H2™ 200W, a fuel cell - based system that can produce hydrogen by hydrolysis simply by combining water with an environmentally friendly¹ chemical powder. Replacing the chemical powder presently used with nano silicon powders, such as those about to be produced by the HPQ NANO *PUREVAP™ NSiR*, could significantly increase the hydrogen generation capacity of the system.

On August 18, 2020, HPQ announced that HPQ Nano Silicon Powders Inc ("HPQ NANO"), a 100% owned HPQ subsidiary, and PyroGenesis signed a development agreement covering the *PUREVAP™ Nano Silicon (Si) Reactor ("NSiR")* development program and the future commercialisation of nano silicon materials made with this new, proprietary and low cost manufacturing process. The process will transform Silicon (Si) into spherical Silicon nanopowders and nanowires for use in Li-ion batteries.

The key areas covered by the agreement between HPQ NANO and PyroGenesis are:

1. *PUREVAP™ NSiR* process development program, schedule and cost assumed by HPQ NANO;
2. Acquisition of the *PUREVAP™ NSiR* Intellectual Property as it relates to the manufacturing of Nano Silicon powders and nanowires by HPQ NANO;
3. Revenue distribution between HPQ NANO and PyroGenesis from the sales of Nano Silicon materials made with the *PUREVAP™ NSiR*.

Process development program Phase 1:

- The main goal of Phase 1 is modifying the existing GEN2 PUREVAP™ QRR reactor into the Gen1 NSiR for the purpose of producing nano silicon materials. The resulting new Gen1 NSiR will be a batch process system with a design production capacity of 30 kg/month of nano silicon powders. In order to meet the aggressive Phase 1 timeline agreed by the Parties, HPQ NANO will pay \$200,000 to PyroGenesis over the next 15 weeks needed to complete the process engineering, mechanical engineering, fabrication and system commissioning.

¹ Non-toxic and recyclable

HIGH PURITY QUARTZ/SILICON (continued)

- Once the *GEN1 NSiR* is operational, a series of test runs will be done in order to produce nano Silicon materials. In addition to producing samples for potential customers, the nano Silicon material produced will be analysed and characterized in order to define important process parameters, fine tune operating parameters and assess the performance of all the components of the systems. HPQ NANO and PyroGenesis have agreed that each series of 10 tests would cost HPQ NANO \$132,000.

Process development program Phase 2:

- Phase 2 main objective is validating the commercial scalability of the *PUREVAP™ NSiR*. Using data collected during GEN1 NSiR testing phase a completely new GEN2 NSiR system will be designed and built. 35 weeks will be needed to complete the process engineering, mechanical engineering, fabrication and system commissioning and HPQ NANO will pay \$210,000 to PyroGenesis for this phase.
- The GEN2 NSiR will be a semi-continuous process system with a design production capacity of 300 kg/month (or about 3,5 MT/year) of nano silicon powders or nanowires, giving HPQ NANO a large enough production capacity to be able to start selling nano silicon materials. In addition to producing nano Silicon material, a series of GEN2 NSiR tests will be done to define the important process parameters and operating parameters required to allow the process and the systems to be scaled up to a commercial production capacity of about 2,500 MT of Nano-Silicon powders per year.

Acquisition of the *PUREVAP™ NSiR* Intellectual Property

- The agreement also covers HPQ NANO acquisition of the intellectual property rights to the *PUREVAP™ Nano Silicon (Si) Reactor* process as it relates exclusively to the production of Micron size and Nano size Silicon Powders and Silicon Nanowires (the “Field”) from PyroGenesis. The acquisition cost of the *PUREVAP™ NSiR* IP is CAD\$2,400,000 and HPQ NANO has 30 days from the effective date of the agreement to make the payment to PyroGenesis.
- PyroGenesis will retain a royalty-free, exclusive, irrevocable worldwide license to use the process for purposes other than the production of Micron size and Nano size Silicon Powders and Silicon Nanowires. Should PyroGenesis be approached by any other parties for any research and development or commercial purposes outside of the Field, HPQ NANO shall have a right of first refusal, provided that, however, HPQ NANO exercise its right of first refusal within thirty (30) days of PyroGenesis receiving a bona-fide offer.

Revenue distribution between HPQ NANO and PyroGenesis

HPQ NANO Silicon Powders Inc, is a stand-alone Corporation that will finance the Research and Development programs and manage the future commercialisation of Nanoscale Silicon (Si) materials made with the *PUREVAP™ NSiR*.

- HPQ NANO will pay PyroGenesis, on an annual basis, and until conversion, the following minimum royalty (Nano-Royalty) on the gross sales of nano materials produced with the *PUREVAP™ NSiR* Process and Systems:

HIGH PURITY QUARTZ/SILICON (continued)

- > For 2021, the greater of 10% of HPQ NANO gross sales or fifty thousand dollars (CDN\$50,000);
 - > For 2022, the greater of 10% of HPQ NANO gross sales or one hundred thousand dollars (CDN\$100,000);
 - > For 2023, the greater of 10% of HPQ NANO gross sales or one hundred and fifty thousand dollars (CDN\$150,000);
 - > For 2024 and beyond, the greater of 10% of HPQ NANO gross sales or two hundred thousand dollars (CDN\$200,000).
- PyroGenesis is being granted the right to convert, at any time and at its sole discretion, its Royalty into a 50% equity stake in HPQ NANO.

On June 11, 2020, HPQ announced that it had signed a non-disclosure agreement (“NDA”) with an advanced materials developer for the purposes of exchanging technical information and sending silicon samples produced by the *PUREVAP™ NSIR* for energy storage applications testing. For industry competitive reasons, and according to the terms of the NDA, the identity of the advanced materials developer must remain confidential.

On April 15, 2020, HPQ announced promising results emanating from electrochemical performance tests performed on materials produced with our *GEN2 PUREVAP™ QRR*.

- Tests conducted at the Institut National de Recherche Scientifique (INRS), on material produced with the *GEN2 PUREVAP™ QRR* (“GEN2”), demonstrated its potential to advantageously replace graphite in Lithium-ion (Li-ion) batteries while limiting the disadvantages inherent to silicon anodes.
- The tests on material produced with the GEN2 are part of a series of initiatives being undertaken by HPQ in order to become a producer of silicon (Si) materials suitable for the next generation Li-ion batteries. The tests were completed at the Centre Énergie Matériaux Télécommunications (EMT) of the INRS by Professor Lionel ROUÉ under an NSERC Engage Grant and a NSERC Engage plus Grant.
- The exact composition of the material produced with the GEN2 as well as how the electrodes used in the tests were prepared are trade secrets of HPQ. HPQ will take the necessary steps to protect this invention. As part of this research project, HPQ retains all intellectual property rights in relation to this invention.

On January 15, 2020, HPQ announced that the *PUREVAP™ GEN 2 QRR* was used to do a proof-of-concept test that validated its capability of successfully producing spherical nano-powders from silicon metal with a primary size <500 nanometers (<0.5 µ).

As per the scheduling established for the *PUREVAP™ QRR* for the design, manufacturing, assembly, commissioning and the start of pilot plant operations, no remittance has been made by the Company during 2021.

Budgeted at CDN\$ 2,830,000, the Corporation made a \$1,950,000 deposit to be used as payment for the start-up of the equipment and lasting up to twelve (12) months, this final phase of the program will allow the validation and quantification of the following *PUREVAP™ QRR* disruptive advantages:

HIGH PURITY QUARTZ/SILICON (continued)

- a) That it can produce a higher purity silicon material than any traditional processes in one step,
- b) That it does not require the extremely pure feedstock needed by conventional processes,
- c) That it only requires 4.5 MT of raw material to make 1 MT of Silicon versus the 6 MT required by conventional processes,
- d) That it does possess a significant cash cost advantage versus the lowest cost traditional Silicon producer.

As per the established deadline for the *RSiN PUREVAP™* design, manufacture, assembly and hot start of the equipment for \$ 542,000. The Company made a payment of an amount of \$ 80,000.

EXPLORATION AND EVALUATION EXPENSES

There were no deferred exploration expenses for the quarter ending on December 31, 2021, and 2020.

SELECTED QUARTERLY FINANCIAL INFORMATION

The following table presents Selected Financial Information for the last eight quarters.

Quarter finishing on:	Fiscal 2021				Fiscal 2020			
	12/31	09/30	06/30	03/31	12/31	09/30	06/30	03/31
	\$	\$	\$	\$	\$	\$	\$	\$
Operating costs	4,727,680	307,110	453,262	306,642	334,241	260,895	283,944	209,291
Net Loss (profit)	5,158,711	684,978	993,896	(506,319)	529,234	(60,744)	54,639	268,462
Loss per share (basic and diluted)	0.02	0.00	0.00	0.00	0.01	0.00	0.00	0.00
Current Assets	4,410,906	5,287,309	9,647,128	5,017,697	2,963,648	3,026,367	979,999	2,252,826
Total Assets	21,722,779	23,963,454	27,949,094	19,794,947	17,662,836	16,682,482	12,028,083	10,901,529
Current Liabilities	601,340	675,850	4,400,230	535,990	523,075	615,393	903,558	935,449
Non-Current Liabilities	2,789,194	2,763,765	2,964,047	4,793,584	4,651,082	3,678,526	3,825,355	3,689,545
Shareholders' Equity	18,332,245	20,523,839	20,584,817	14,465,373	12,488,679	12,388,563	7,299,170	6,276,535

DISCUSSION ON THE FINANCIAL INFORMATION FOR THE FOURTH QUARTER 2021

• TOTAL PERFORMANCE

For the last quarter of 2021, the Company saw its Net Loss increase by \$ 4,629,477 (875%) (\$ 5,158,711 vs \$ 529,234), while operational costs increased by \$ 4,393,439 (1,314 %) (\$ 4,727,680 vs \$ 334,241), during the last seven quarters their respective averages were \$ 280,592 and \$ 307 912.

• NET LOSS ANALYSIS

The Net loss increase by \$ 4,629,477 (875%) (\$ 5,158,711 vs. \$ 529,234), versus the same period in 2020, this corresponds to an increase in operating costs of \$ 4,393,439 (1,314%) (\$ 4,727,680 vs \$ 334,241) and a decrease in other income and expenses of \$ 236,038 (-\$ 431,031 vs - \$ 194,993).

Operating costs increased by \$ 4,393,439 (1,314%) (\$ 4,727,680 vs \$ 334,241). This increase is linked to several elements; Salaries and charges for employee benefits expenses increased by \$ 2,596,236 (\$ 2,708,160 vs \$ 111,924) which corresponds to share-based payments of \$ 2,359,792, performance bonuses of \$125,000 as well as charges on the exercise of the option of approximately \$55,000, Shareholder information costs increased by \$ 31,728 (121%) (\$ 57,866 vs. \$ 26,138) which represents the increase in TSX venture costs as well as OTC Markets fees, professional fees increased of \$ 361,657 (\$ 502,916 versus \$ 141,259) which represents an option grant to professional worth \$360,297 and travel expenses increased of \$ 14,405 (\$ 15,235 versus \$ 830) which represents a trip to Europe for the validation of the EBH₂ hydrogen system and other business development. There was also an impairment of exploration and evaluation assets of \$ 1,164,595 during the last quarter of 2021.

The decrease in other income and expenses of \$ 236,038 (-\$ 431,031 versus -\$ 194,993) primarily reflects the decrease in the change in the fair value of listed securities.

SELECTED ANNUAL FINANCIAL INFORMATION

The following table presents Selected Financial Information for fiscal 2021, 2020, 2019 and 2018.

	FISCAL 2021	FISCAL 2020	FISCAL 2019	FISCAL 2018
	12/31	12/31	12/31	12/31
	\$	\$	\$	\$
Operating expenses	5,794,694	1,088,371	1,339,622	1,517,191
Net loss	6,331,266	791,591	1,384,341	1,645,423
Results per share (basic and diluted)	(0.02)	(0.01)	(0.01)	(0.01)
Current Assets	4,410,906	2,963,648	2,294,572	3,022,683
Total Assets	21,722,779	17,662,836	10,854,176	11,391,633
Current Liabilities	601,340	523,075	656,765	824,286
Non-current Liabilities	2,789,194	4,651,082	3,665,427	3,326,348
Shareholders' Equity	18,332,245	12,488,679	6,531,984	7,240,999

GENERAL DISCUSSION ON FINANCIAL INFORMATION FOR 2021

- **OVERALL PERFORMANCE**

In 2021, in comparison to 2020, the Company saw an increase in its Net Loss of \$ 5,539,675 (700%) (\$ 6,331,266 vs \$ 791,591), while operating costs increased by \$ 4,706,323 (432%) (\$ 5,794,694 vs \$ 1,088,371), during the last three previous periods these costs averaged respectively \$ 1,273,785 and \$ 1,315,061.

- **DISCUSSION ON GLOBAL RESULTS**

The increase in Net loss of \$910,198 (347%) (\$1,172,555 vs \$262,357), in comparison to the same period in 2020, corresponds to the increase in the operation costs of \$ 312,884 (41%) (\$1,067,014 vs \$ 754,130) and the decrease in other income and expenses by \$597,314 (60%) (-\$105,541 vs \$ 491,773).

There was an increase in costs operations of \$312,884 (41%) (\$1,067,014 vs. \$754,130). This increase is linked to several elements; Shareholder information increased by \$74,299 (187%) (\$ 114,048 vs \$ 39,749) which represents the increase in TSX venture fees, OTC Markets fees as well as the costs of sending documents to the annual general meeting of shareholders, professional fees increased of \$41,915 (17%) (\$ 349,382 vs \$ 307,470) which represents the expenses due to the changes of auditor, office expenses increased of \$ 5,261 (13%) (\$ 45,532 vs \$ 40,271) which represents the increase in insurance to directors and salaries and employee benefits expenses increased by \$ 88,710 (23%) (\$ 468,140 vs \$ 379,430) which represents the social charges relating to the exercise of options by directors and officers.

The decrease in other revenues and expenses of \$ 833,352 (-\$ 536,572 vs \$ 296,780) corresponds to the decrease in the change in the fair value of marketable securities of \$ 688,000 (-\$ 56,000 vs \$ 632,000) and the increase in the amortization change of the present value of royalties payable of \$ 290,022 (\$ 387,809 vs \$ 97,787) as well as the decrease in the expense related to the convertible debenture of \$ 144,517 (\$ 134,514 vs \$ 279,031).

- **LIQUIDITIES AND CAPITAL RESOURCES**

For the year ending December 31, 2021, the Company had working capital of \$ 3,809,566 (\$ 2,440,573 as at December 31, 2020). The current assets of \$ 4,410,906: cash on hand of \$ 2,672,697 (\$ 1,888,282 as at Dec. 31, 2020), marketable securities in a quoted company of \$ 666,000 (\$ 722,000 as at Dec. 31, 2020), HST tax receivables of \$ 645,981 (\$ 183,366 as at Dec. 31, 2020), no Royalties receivable (\$ 50,000 as at Dec. 31, 2020), Investment tax credits receivable of \$ 50,000 (\$ 20,000 as at December 31, 2020), exploration and evaluation assets held for sale of \$ 200,000 (no amount as at December 31, 2020) and prepaid and other expenses of \$ 176,229 (\$ 100,000 as at Dec. 31, 2020).

The marketable securities in a quoted company for a value of \$ 666,000 represent an investment at the fair market value of PyroGenesis. The HST receivable for \$ 645,981 represent taxes on payments made to suppliers during the third and last quarter. The prepaid expenses and other of \$ 176,229 represent miscellaneous fees and a payment for Testing of the System, insurance for directors and officers as well as a filing for the declaration of change upon registration on the TSX Venture Exchange and the annual fees for OTC Markets. The exploration and evaluation assets held for sale of \$200,000 represent the Martinville and Roncevaux properties.

GENERAL DISCUSSION ON FINANCIAL INFORMATION FOR 2021 (continued)

- **LIQUIDITIES AND CAPITAL RESOURCES (continued)**

In fiscal 2021, the Company acquired \$ 458,533 worth of property and equipment plus intangible assets valued at \$ 3,719,043. The deposit on contract of \$ 1,950,000 represents a part of the cost related to the break-in of test equipment that has been deferred over the long term.

Current liabilities totalling \$ 601,340 (\$ 523,075 as at Dec. 31, 2020) were made up of amounts owed to trade and other payables of \$ 258,905 (\$ 191,001 as at Dec.31, 2020), due to Directors of \$ 41,500 (\$ 116,750 at Dec. 31,2020) and royalties payable of \$ 300,935 (\$ 215,324 at Dec. 31, 2020). The non-current liabilities of \$ 2,789,194 (\$ 4,651,082 as at Dec. 31, 2020), due to Directors, Officers and a company controlled by a director \$ 982,456 (Nominal value \$ 1,020,891) (\$ 1,022,322 as at Dec. 31, 2020, for nominal value of 1,088,141), the convertible debenture and derivative financial liabilities and including accrued interests for a value of Nil (1,874,220 at Dec. 31, 2020) as well as royalties payable of \$ 1,806,738 (\$ 1,754,540 as at Dec. 31, 2020).

During the 2021 fiscal year, the Company issued 61 022 799 shares. This corresponds to: the exercise of 38,455,000 warrants for an amount of \$ 5,863,000, the exercise of 5,700,000 options for an amount of \$ 1,651,000, 50,091 shares for debt settlements of \$ 52,375 and 16,817,708 shares upon conversion of the convertible debenture and interests due of a nominal value of \$ 2,076,984.

- **WORKING CAPITAL**

As at December 31, 2021, the Corporation had a cash flow of \$ 2,672,696 (\$ 1,888,282 for 2020).

The Cash Flow used for operational activities was \$ 2 409,635. The use of cash flow for operations is made up of the Net loss of \$ 6,331,266. The other non-cash elements that have no influence on cash flow are composed of various accretion of \$ 473,642, Share of loss from equity-accounted investment for \$ 53,596, gain on the decrease of our participation in Beauce Gold Fields of \$ 32,859, Financial costs of \$ 48,547, the change in fair value of the derivative liability of \$ 58,268, the variation in the value of the shares of a publicly traded company of \$ 56,000, share-based payments of \$2,720,089, a devaluation of exploration and valuation assets of \$1,164,595 as well as amortization of intangible assets of \$ 234,021. The change in cash flow for operational working capital represents an amount of \$ 737,732 which comes from: the increase in HST receivables of \$ 462,615, increase in the prepaid expenses and other of \$ 76,229, decrease in due to directors of \$75,250, decrease in royalties payable by \$250,000 as well as the increase in trade and other payables of \$ 126,362.

The use of cash flow for investing activities of \$ 4,185,804 consists of: addition of exploration and evaluation assets of \$ 2,144, addition to property and equipment of \$ 458,533 and addition to intangible assets of \$ 3,735,127.

The cash flow from financing activities of \$ 7,389,853 includes the exercise of warrants for \$ 5,863,000, the exercise the stock option for \$ 1,651,000 and payment of due to directors for \$ 72,050. There were share issuance costs of \$ 52,097. The Company increase in cash flow of \$ 784,414 during the year.

GENERAL DISCUSSION ON FINANCIAL INFORMATION FOR 2021(continued)

- **WORKING CAPITAL** (continued)

The Corporation average quarterly cash requirements should vary between \$ 250,000 and \$ 275,000 according to each period's activities excluding exploration and evaluation costs and the addition to property equipment and intangible assets.

As the Company is still in its development phase and will now focus on the innovation of 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 financing in order to fund future operations and expansion plans. The Company does not expect to generate revenue from product sales unless and until it successfully completes development of its silicon solutions, which may take a number of years and is subject to significant uncertainty. Until such time that it can generate significant revenue from product sales, if ever, the Company expects to finance its operations through a combination of public or private equity or debt financings 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

The Company entered into agreements with subscribers whereby the Company had to incur \$1,245,000 of Canadian Exploration Expenses ("CEE") before December 31, 2017. The Company had incurred \$919,296 in CEE before December 31, 2017 and an approximate balance of \$293,000 of CEE renounced to the investors was not been incurred as at December 31, 2017, and was used for other purposes than exploration expenses. The maximal contingency for the Company, in relation to non-compliance with its obligations with subscribers, is approximately \$220,000. As at February 28, 2018, the Company had produced the reductions forms related to the amount of \$293,000 in CEE renounced to the investors and that have not been incurred as at December 31, 2017. As at December 31, 2021, an amount of \$ 27,321 pertaining to part XII.6 taxes is included in trade accounts payable.

FINANCIAL COMMITMENTS, CONTINGENCIES AND SUBSEQUENT EVENTS (suite)

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:

- 2022 and after, the highest between 10% of Si sales or \$250,000.

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

- 2022, 10% of nano silicon materials sales or \$ 100,000;
- 2023, 10% of nano silicon materials sales or \$ 150,000;
- 2022 and after, 10% of nano silicon materials sales or \$ 200,000.

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

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

As at December 31, 2021, the remaining total commitment for the purchase of the Pilot Plant Equipment was approximately \$3,473,467 of which an amount of \$1,950,000 is a deposit on a contract for the PUREVAP™ QRR.

Subsequent to period end, 4,152,000 warrants were issued for a total amount of \$643,560 in cash and 900,000 share options were issued for a total amount of \$108,000 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. Final results could differ from these estimates.

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

CRITICAL ACCOUNTING POLICIES (continued)

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:

- Fair value of Exploration and Evaluation Assets held for sale.
- Internally generated intangible assets;
- Evaluation of Income Tax Credits receivable on resources exploration and Mining Right Credits;
- Evaluation of the convertible debenture and derivative financial liability;
- 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 consolidated financial statements are supplied below.

FUTURE ACCOUNTING POLICIES

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

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

Amendments to IAS 16, Property, Plant and Equipment: Proceeds Before Intended Use

In May 2020, the IASB issued Property, Plant and Equipment: Proceeds before Intended Use, Amendments to IAS 16. This amendment prohibits a company from deducting from the cost of property, plant and equipment amounts received from selling items produced while the company is preparing the asset for its intended use. Instead, a company will recognize such sales proceeds and related costs in profit or loss. This amendment is applicable to the Company beginning January 1, 2022. Management is currently assessing the impact of the adoption of this amendment, but no significant impact is expected on the Company's financial statements.

IAS 1, Disclosure of Accounting Policies

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

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

FUTURE ACCOUNTING POLICIES (suite)

IAS 8, Definition of Accounting Estimates

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

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

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

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

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

DISCLOSURE CONTROLS AND PROCEDURES AND INTERNAL CONTROLS OVER FINANCIAL REPORTING

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 to ensure 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, royalties’ receivable and the deposit on contract are part of the loans and receivables category.

The financial liabilities of the Corporation include supplier and creditor 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), royalties payable, the interest payable on the convertible debenture, the convertible debenture and its derivative financial liability.

The fair value of royalties’ receivable; of due to Directors, Officers and corporations, controlled by a director or Officer; of the convertible debenture and derivative financial liabilities, of the Royalties payable, are estimated using an analysis of the discounted cash flows using an interest rate for similar instruments. The fair value of royalties’ payable approximates the carrying amount at the end of the period, while the fair value of the due to directors, officers and a corporation held by a director is \$ 982,456.

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, 2021.

As at December 31, 2021, the Company cash was held in Canadian funds in an interest-bearing account at Bank of Montreal.

INFORMATION ON SHARE CAPITAL

- **Information on financings**

On December 31, 2021, the Corporation had 334,792,358 shares issued and outstanding (273,769,559 on December 31, 2020), 24,201,012 warrants (62,656,012 as at December 31, 2020) and 17,885,000 Options (8,600,000 as of December 31, 2020). The number of shares on a diluted basis is 376,878,370.

- **Information on outstanding shares**

As at April 29, 2022, the Corporation had 339,844,358 shares issued and outstanding, 20,049,012 warrants and 16,985,000 options. The number of fully diluted shares is 376,878,370. 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, 2021, the sum of \$ 268,750 (\$150,000 on December 31, 2020) was accounted for as management fees under a contract between the Corporation and a corporation controlled by the Chairman of the Board as part of a consulting agreement with the Corporation.

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

Accounts payable and other payables include \$ 59,854 due to officers and a corporation held by a director (\$ 106,972 as at December 31, 2020).

The Corporation owes to Directors and Officers salaries and remuneration with a nominal value of \$1,061,891. The Corporation has obtained confirmation that payment of an amount of \$1,020,391, under certain conditions, will not be demanded for a minimum of 12 months and one day after September 30, 2021.

RISK FACTORS

- **Inherent risks in mineral exploration and evaluation**

The Corporation's activities consist in the acquisition and exploration of mining properties with the hope of discovering mining sites with economic potential. The Corporation's properties are currently at the exploration stage and do not hold any known commercial deposit. It is very unlikely that the Corporation will realize any short or mid-term benefits from these properties. Any future profitability of the Corporation's operations is conditional on the discovery of an economic ore body. In addition, if such a case would arise, nothing guarantees that such an ore body could be put into profitable commercial production.

RISK FACTORS (continued)

- **Environmental regulations and commitments**

The Corporation's activities require that it obtains permits from various governmental authorities and are regulated by laws and regulations on the exploration, development, extraction, production, exports, income tax, labor regulations and workplace safety as well as environmental issues and other topics.

Additional costs and delays could be caused by the need to comply with laws and regulations. If the Corporation cannot obtain or renew its permits or approvals, it could be forced to reduce or cease its Exploration Evaluation and Development activities.

- **First Nations relations**

The Corporation regularly initiates exploration work in areas where First Nations could make claims. These claims could slow down the work to do or could increase its costs. The effect of these factors cannot be precisely determined.

- **Financing needs**

The exploration, evaluation, development, extraction and production from the Corporation's properties will necessitate very substantial additional financial resources. The only sources of funds available are through the issuance of share capital and borrowing. There is no assurance that such financings will be available, neither would they be available at favorable conditions or will respond sufficiently to the project's needs. This could have a negative effect on the Corporation's business and financial situation. The impossibility of obtaining a sufficient financing could delay or postpone indefinitely exploration evaluation or production activities on one or all the Corporation's properties, and even see the Corporation lose its participation in some or all of its properties.

- **Metal prices**

The Corporation's share price, its financial results as well as its exploration and evaluation, production and development activities have been affected in the past and could very well be very negatively affected in the future by a fall in the price of precious and base metals.

- **Non-insured risks**

The Corporation's activities are subject to certain risks and dangers, including difficult environmental conditions, industrial accidents, labor conflicts, unusual or unexpected geological conditions, landslides, rock falls and other natural phenomenon such as unfavorable meteorological conditions, floods and earthquakes. Such events could result in bodily injuries or death, environmental damages or other damages to the properties or the production facilities or to the properties of other corporations, delays in mining production, monetary losses, and possibly legal liabilities.

RISK FACTORS (continued)

- **Corporate permanence**

The Corporation's future depends on its ability to finance its activities and to develop its assets. The failure to obtain sufficient financing could create a situation where it could not continue its activities, realize its assets and settle its liabilities in the normal course of business within a foreseeable future.

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

(s) François Rivard, Chief Financial Officer

Montreal, April 29, 2022.