

# HPQ Silicon Resources Inc. PUREVAP™ Quartz Reduction Reactor Pilot Plant Ready to Start

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## PUREVAP™ QRR Commissioning Completed

MONTREAL, May 26, 2022 - HPQ Silicon Resources Inc. ("HPQ" or the "Company") (TSX-V: HPQ) (OTCQX: HPQFF) (FWB: UGE), an innovative silicon solutions and technology development company, would like to report to shareholders that technology provider, PyroGenesis Canada Inc. (TSX: PYR) (NASDAQ: PYR) (FRA: 8PY), has informed HPQ that the commissioning phase of the program has been completed and that the PUREVAP™ Quartz Reduction Reactor (QRR) pilot plant is now functional.

### HPQ PUREVAP™ QRR PROJECT STARTING ITS MOST EXCITING PHASE

With the GEN3 PUREVAP™ QRR pilot plant functional the project is entering its final Research and Development phase; operating the pilot plant to test the system under operational conditions and producing high purity Silicon material sought after by battery makers and high value application manufacturers.

Budgeted at CDN\$ 2,830,000 and lasting up to twelve (12) months, this final phase of the program will allow HPQ to validate and quantify the following PUREVAP™ QRR disruptive advantages identified during the previously completed Gen1 and Gen2 PUREVAP™ QRR testing phases:

- a) Produce silicon material of higher purity than any traditional processes in a single step<sup>1</sup>,
- b) That it can do so without the need for extremely pure feedstock required by conventional processes<sup>2</sup>,
- 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<sup>2</sup>,
- d) That it does possess a significant cash cost advantage versus the lowest cost traditional Silicon producer<sup>2</sup>.

As the test work advances, HPQ will commence:

1. Using the material for downstream testing and production of more HPQ high value add products,
2. Providing samples to potential off-takers to allow product customization, and
3. Planning the deployment of commercial – scale production systems (PUREVAP™ QRR 4.0) capable of producing 2,500 tonnes per year of high purity silicon material.

"With the PUREVAP™ GEN3 QRR pilot plant functional, HPQ is ready to disrupt Silicon manufacturing, an industry that still relies on a traditional process developed in 1899 to make silicon. The PUREVAP™ QRR pilot plant could not have come online at a more opportune time. Demand for traditional silicon is estimated to exceed 3.8 million tonnes by 2025<sup>3</sup>. This represents an addressable market worth over US\$ 10 billion based on historical average selling price for 5.5.3 Si (98.5% Si) of US\$2,600 per Tonne<sup>3</sup>, or over US\$ 38 billion based on the average spot price for 5.5.3 Si of US\$10,000 per Tonne obtained during Q4 2021 and Q1 2022<sup>4</sup>. These numbers do not include demand that is about to come online for high purity silicon from the battery and high-performance material companies just as bottlenecks we had foreseen are now occurring in the silicon supply chain," said Mr. Bernard Tourillon, President and CEO of HPQ Silicon. Mr. Tourillon further stated, "With ESG principles playing an active role in materials sourcing, and recent geopolitical unrest emphasizing the need for stable trade partners and security of supply, the world is more aware of the difficulties in securing the ESG compliant Silicon needed to meet its renewable energy goals. The reality of chronic underinvestment in new technologies combined with the offshoring of Silicon production capacity, has created a massive opportunity for HPQ and its PUREVAP™ QRR patented process. HPQ is the only company to bring to market a new process for making Silicon that is perfectly suited to the new demands and realities of the Silicon market."

## About PyroGenesis Canada Inc.

PyroGenesis Canada Inc., a high-tech company, is a leader in the design, development, manufacture and

commercialization of advanced plasma processes and sustainable solutions which reduce greenhouse gases (GHG) and are economically attractive alternatives to conventional “dirty” processes. PyroGenesis has created proprietary, patented, and advanced plasma technologies that are being vetted and adopted by multiple multibillion dollar industry leaders in three massive markets: iron ore pelletization, aluminum, waste management, and additive manufacturing. With a team of experienced engineers, scientists and technicians working out of its Montreal office, and its 3,800 m<sup>2</sup> and 2,940 m<sup>2</sup> R&D and manufacturing facilities, PyroGenesis maintains its competitive advantage by remaining at the forefront of technology development and commercialization. The operations are ISO 9001:2015 and AS9100D certified, having been ISO certified since 1997. For more information, please visit: [www.pyrogenesis.com](http://www.pyrogenesis.com)

### **About HPQ Silicon Resources**

HPQ Silicon Resources Inc. (TSX-V: HPQ) is a Quebec-based innovative silicon solutions company that offers silica (SiO<sub>2</sub>) and silicon (Si) based solutions, and is developing a unique portfolio of high value-added silicon (Si) products sought after by battery and electric vehicle manufacturers.

Silicon (Si), also known as silicon metal, is one of today’s key strategic materials needed for the decarbonization of the economy and the Renewable Energy Revolution (“RER”). However, silicon does not exist in its pure state and must be extracted from quartz (SiO<sub>2</sub>) in what has historically been a capital and energy-intensive process.

### **With PyroGenesis Canada Inc. (TSX: PYR) (NASDAQ: PYR), 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<sub>2</sub>) 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 and nanowires of different sizes.
3. Through its second 100% owned subsidiary, HPQ Silica POLVERE Inc., HPQ is developing a new plasma-based process that 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.

HPQ is also a technology development company interested in developing hydrogen-based ventures, that could be complementary to the QRR 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).

For more information, please visit HPQ Silicon web site.

### **Disclaimers:**

*The Corporation’s interest in developing the PUREVAP™ QRR and any projected capital or operating cost savings associated with its development should not be construed as being related to the establishing the economic viability or technical feasibility of any of the Company’s Quartz Projects.*

*This press release contains certain forward-looking statements, including, without limitation, statements containing the words “may”, “plan”, “will”, “estimate”, “continue”, “anticipate”, “intend”, “expect”, “in the process” and other similar expressions which constitute “forward-looking information” within the meaning of applicable securities laws. Forward-looking statements reflect the Company’s current expectation and assumptions and are subject to a number of risks and uncertainties that could cause actual results to differ materially from those anticipated. These forward-looking statements involve risks and uncertainties including, but not limited to, our expectations regarding the acceptance of our products by the market, our strategy to develop new products and enhance the capabilities of existing products, our strategy with respect to*

*research and development, the impact of competitive products and pricing, new product development, and uncertainties related to the regulatory approval process. Such statements reflect the current views of the Company with respect to future events and are subject to certain risks and uncertainties and other risks detailed from time-to-time in the Company's ongoing filings with the security's regulatory authorities, which filings can be found at [www.sedar.com](http://www.sedar.com). Actual results, events, and performance may differ materially. Readers are cautioned not to place undue reliance on these forward-looking statements. The Company undertakes no obligation to publicly update or revise any forward-looking statements either as a result of new information, future events or otherwise, except as required by applicable securities laws.*

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*This News Release is available on the company's CEO Verified Discussion Forum, a moderated social media platform that enables civilized discussion and Q&A between Management and Shareholders.*

Source: HPQ Silicon Resources Inc.

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1 (HPQ February 26, 2019)

2 (HPQ June 17th, 2019)

3 CRU-Silicon Market Outlook November 14, 2018 (pages 20 – 23)

4 Ferroglobe First Quarter 2022 Financial

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