HPQ Silicon Inc. PUREVAP™ Pilot Plant Testing Process Is Advancing and on Schedule

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MONTREAL, Aug. 10, 2022 - HPQ Silicon Inc. (“HPQ” or the “Company”) (TSX-V: HPQ) (OTCQX: HPQFF) (FRA: O08), an innovative silicon solutions and technology development company, would like to update shareholders on progress made to date by technology provider, PyroGenesis Canada Inc. (TSX: PYR) (NASDAQ: PYR) (FRA: 8PY), during the ongoing PUREVAP™ Quartz Reduction Reactor (QRR) pilot plant Research and Development phase.

HPQ GEN3 PUREVAP™ QRR PILOT PLANT R&D TESTING PROGRAM ADVANCING ON SCHEDULE
The GEN3 PUREVAP™ QRR Pilot plant is a first-of-its-kind, state of the art prototype comprised of multiple systems that must operate under harsh conditions and extremely high temperatures. All independent systems have been tested and are fully functional. The final stage of integration is now underway.

Therefore, PyroGenesis is implementing a meticulous approach to move the GEN3 system from functional to operational. Commencing in June 2022 and scheduled to last up to twelve (12) months, the operational development phase can be further broken down into the following milestones:

a) Complete system integration validation, about a quarter (1/4) of time is allocated to this phase,

b) Reactor startup, about one twelfth (1/12) of time is allocated to this phase,

c) Four (4) process improvement tests, about one sixth (1/6) of time is allocated to this phase, and

d) Operating the GEN3 QRR on a continuous non-stop production basis, during the remaining time.

As with all R&D projects, and particularly with a new process technology, the timeline is subject to change. Pyrogenesis is confident that the program will allow HPQ to validate and quantify the previously completed GEN1 and GEN2 PUREVAP™ QRR testing phase results:

i. Produce silicon material of higher purity than any traditional processes, in a single step1,

ii. That it can do so from raw material sources without the need for extremely pure feedstock required by conventional processes2,

iii. That it only requires 4.5 MT of raw material to make 1 MT of Silicon versus the 6 MT required by conventional processes2,

iv. That it can do so at a lower cost advantage versus all traditional Silicon producers2.

Furthermore, once process improvement tests start (see point c above), 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,

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.

“The PUREVAP™ GEN3 QRR pilot plant is about to open-up opportunities for HPQ Silicon that we only dream of when we started our first GEN1 QRR tests in 2016. Our GEN1 and GEN2 tests demonstrated that we were on the right path to disrupting Silicon manufacturing, an industry that still relies on a traditional process developed in 1899 to make silicon. With the Pilot Plant, we intend to validate our disruptive potential,” said Mr. Bernard Tourillon, President and CEO of HPQ Silicon Inc. “Demand for traditional silicon is estimated to exceed 3.8 million tonnes by 20253. This represents a massive addressable market worth anywhere between over US $ 10 billion based on historical average selling price for 5.5.3 Si (98.5% Si) of US$2,600 per Tonne3, to over US$ 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 20224. 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."

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; global corporations are becoming more aware of the difficulties in securing the ESG compliant Silicon needed to meet their renewable energy goals. The reality of chronic underinvestment in new technologies combined with the offshoring of Silicon production capacity, is creating massive opportunities 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 m2 and 2,940 m2 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

About HPQ Silicon Resources

HPQ Silicon Inc. (TSX-V: HPQ) is a Quebec-based innovative silicon solutions company that offers silica (SiO2) 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, among other industries.

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 (SiO2) 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 (SiO2) 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 chemicals 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 on their proprietary process to manufacture Green Hydrogen via electrolysis, and

2. Developing HPQ's own processes of making hydrogen via hydrolysis of nanosilicon materials made by our PUREVAP™ (NSiR).

For more information, please visit HPQ Silicon web site.

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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)
4Ferroglobe First Quarter 2022 Financial