

## HPQ GEN3 PUREVAP™ QUARTZ REDUCTION REACTOR PILOT PLANT COMMISSIONING COMMENCES AS GLOBAL SILICON PRICES SPIKE IN THE FACE OF SUPPLY SHORTAGE

**MONTREAL, Canada, Oct. 21, 2021** — [HPQ Silicon Resources Inc.](#) (“HPQ” or the “Company”) (TSX-V: HPQ) (OTCQX: HPQFF) (FWB: UGE), an innovative silicon solutions and technology development company, is pleased to inform shareholders that further to our [June 10](#) and [August 18](#), 2021 releases, technology provider, [PyroGenesis Canada Inc.](#) (TSX: PYR) (NASDAQ: PYR) (FRA: 8PY), has confirmed 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.

### PILOT PLANT TESTING TO VALIDATE PUREVAP™ QRR GAME CHANGING ADVANTAGES

The PUREVAP™ QRR is a new innovative process, which will permit the one-step transformation of quartz (SiO<sub>2</sub>) into high purity silicon metal (>99.5% Si, referred to as 2N+) (patent pending #1) at reduced costs, energy input, and carbon footprint. The central advantage of the process is its unique capability (patent pending #2) of continuously operating the unique carbothermic process, resulting in the early removal of impurities. Importantly, the process does not necessitate the extremely pure feedstock required by conventional processes to make standard purity Si (98.5% to 99.4% Si). The process also requires 4.5 MT of raw material to make 1 MT of Silicon, versus 6 MT of conventional, a 25% reduction which potentially allows a 20% cash cost advantage versus the lowest cost producer using the traditional processes<sup>1</sup>.

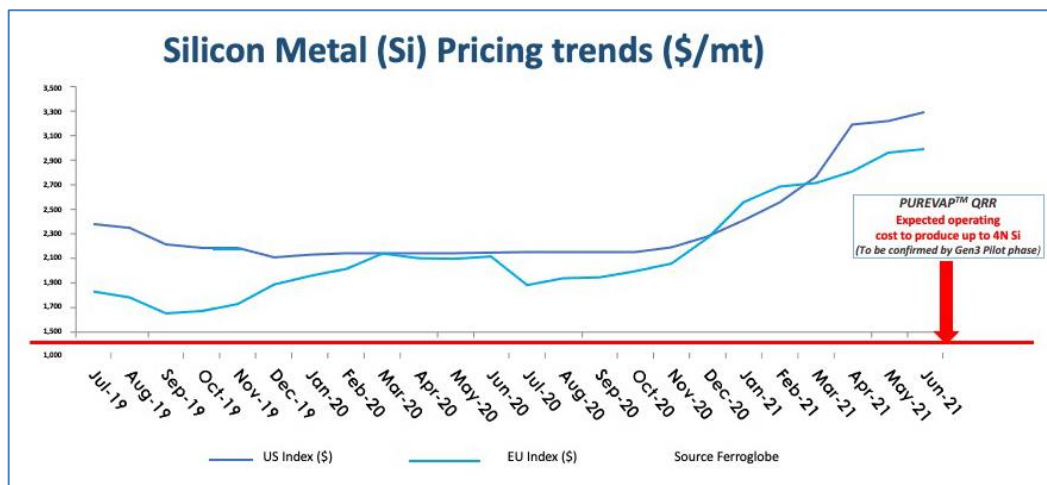


Figure 1) Silicon Metal pricing trends pre-Covid and now in the US and Europe, in relationship to the PUREVAP™ QRR expected operating cost, that will be validated during the Gen3 pilot plant program.

### SILICON MARKET DEFICIT AT 92,000 MT, PRICES SOARING, NEW GREENFIELD DEVELOPMENTS NEEDED<sup>2</sup>

[Recent market events](#) are focussing attention on the fact that Silicon (Si), also known as silicon metal, is one of today’s key strategic energy metals needed to meet the goal of decarbonizing the economy by 2050. High Purity Silicon (2N+) is in very high demand due to the underlying needs for Silicon as feedstock for Polysilicon (Solar and Electronics), the emerging Batteries sectors, and the more typical industrial Silicone applications, at a time when capacity is simply not available to meet demand. This is a result of several of the old energy intensive plants, mothballed during the Covid pandemic, being not economically or environmentally viable to return online. New greenfield projects will be needed to meet demand, and the PUREVAP™ QRR technology is well positioned to eventually become the industry’s option of choice.

<sup>1</sup> [HPQ Silicon June 17<sup>th</sup>, 2019, release](#)

<sup>2</sup> [www.reuters.com/business/energy/solar-industry-demand-raises-temperature-silicon-market-2021-09-21/](http://www.reuters.com/business/energy/solar-industry-demand-raises-temperature-silicon-market-2021-09-21/)

*“HPQ has been at the forefront of Low-Cost Green Silicon innovation developments since 2015, and with the commissioning of the GEN3 PUREVAP™ QRR pilot plant, our timing couldn’t be better. With ESG principles playing an active role in materials sourcing, the world is waking up to the difficulty of 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 process, as we are the only company to bring to market a new process to make Silicon that is perfectly suited to the new demands and realities of the Silicon market,” said Mr. Bernard Tourillon, President and CEO of HPQ Silicon.*

### **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 four 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> 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 innovative silica (SiO<sub>2</sub>), 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 pending), 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 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.

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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**Source:** HPQ Silicon Resources Inc.

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