HydroGraph Awarded New U.S. Patent for Graphene-Based Actuator Technology

Electrothermal actuator leverages Fractal Graphene™ to deliver silent, scalable, high-force motion

VANCOUVER, British Columbia – October 8, 2025 – HydroGraph Clean Power Inc. (CSE: HG) (OTCQB: HGRAF) ("HydroGraph" or the "Company"), a leading producer of ultra-pure graphene, today announced that it has been granted U.S. Patent No. 12,378,948 for a novel actuator technology that uses electrically conductive porous carbon materials, including HydroGraph's proprietary Fractal Graphene™, to generate controlled mechanical force.

This marks the first U.S. patent granted for an invention developed in HydroGraph's laboratories, part of the Company's strategy to expand its intellectual property portfolio beyond its foundational graphene synthesis patents licensed from Kansas State University. Additionally, HydroGraph now has 11 additional patent applications pending covering various material innovations and applications.

The patented design harnesses the fractal, highly porous structure of HydroGraph's Fractal Graphene™ to create an electrothermal actuator. By applying a small voltage, Joule heating expands the enclosed air within the material, generating motion and force. Unlike conventional actuators, HydroGraph's device delivers rapid, silent, and scalable force generation. A unit the size of a finger can generate approximately one newton of force, with designs scalable to larger outputs.

The global actuators market was estimated at USD 66.95 billion in 2024 and is projected to reach USD 71.22 billion in 2025 to approximately 100.41 billion by 2030, reflecting a compound annual growth rate of about 7.1 percent. This steady growth highlights the expanding demand for actuator technologies that can deliver greater efficiency, lower noise, and improved adaptability across sectors including automotive, manufacturing, robotics, and consumer appliances.

"Fractal Graphene™ is unique in that its structure is more than 95 percent air, giving it an extraordinary ability to generate force when heated electrically," said Dr. Ranjith Divigalpitiya, HydroGraph's Chief Science Officer and co-inventor of the patent. "In effect, it is essentially electrically conducting air. This patent demonstrates how the intrinsic properties of our material can be translated into new types of actuators. While further validation and development are

required, the scientific foundation laid here opens a pathway to motion technologies that are lightweight, quiet, and adaptable across scales."

The invention has broad claims covering porous carbon materials such as carbon black, graphite, carbon nanotubes, and graphene foams. Potential applications include:

- HVAC and building systems: replacement for wax or PTC-based hydronic valve actuators.
- Consumer appliances: silent, low-voltage actuators for dishwashers, coffee/steam machines, and other household goods.
- Automotive thermal management: compact, EMI-immune actuators for EV and ICE cooling loops.
- Microfluidics and diagnostics: lab-on-chip devices where small, fast actuators are critical.
- Aerospace and robotics: lightweight, scalable, and silent actuation in environments where motors are impractical.

"Securing this patent is an important milestone in broadening HydroGraph's intellectual property portfolio," said Kjirstin Breure, CEO of HydroGraph. "While our core focus remains on the commercialization of high-purity graphene, this achievement underscores the versatility of our technology platform. Intellectual property of this nature strengthens our long-term position and provides optionality as we evaluate applications where our materials can create measurable value. We look forward to working with potential partners to explore the most suitable avenues for this innovation."

The patent positions HydroGraph to explore development of a family of actuators ranging from cost-sensitive carbon black versions to premium graphene foam designs.

About Hydrograph
HydroGraph is a leading producer of pristine graphene using an "explosion synthesis" process, which allows for exceptional purity, low energy use, and identical batches. The quality, performance, and consistency of HydroGraph's graphene follow the Graphene Council's Verified Graphene Producer® standards, of which very few graphene producers are able to meet. For more information or to learn about the HydroGraph story, visit: https://hydrograph.com/. For company updates, please follow HydroGraph on LinkedIn and X.

Trademarks: HydroGraph™ and Fractal Graphene™

Forward-Looking Statements
This release contains certain "forward-looking statements" and certain "forward-looking information" as defined under applicable Canadian securities laws. Forward-looking statements and information can generally be identified by the use of forward-looking terminology such as "may", "will", "expect", "intend", "estimate", "upon", "anticipate", "believe", "continue", "plans" or similar terminology.

Forward-looking statements and information are based on forecasts of future results, estimates of amounts not yet determinable, and assumptions that, while believed by management to be reasonable, are inherently subject to significant business, economic, and competitive

uncertainties and contingencies. Forward-looking statements and information are subject to various known and unknown risks and uncertainties, many of which are beyond the ability of HydroGraph to control or predict, that may cause HydroGraph's actual results, performance or achievements to be materially different from those expressed or implied thereby, and are developed based on assumptions about such risks, uncertainties and other factors set out herein, including but not limited to: HydroGraph's ability to implement its business strategies; risks associated with general economic conditions; adverse industry events; stakeholder engagement; marketing and transportation costs; loss of markets; volatility of commodity prices; inability to access sufficient capital from internal and external sources, and/or inability to access sufficient capital on favorable terms; industry and government regulation; changes in legislation, income tax and regulatory matters; competition; currency and interest rate fluctuations; and other risks. HydroGraph does not undertake any obligation to update forward-looking information except as required by applicable law. Such forward-looking information represents management's best judgment based on information currently available.

No forward-looking statement can be guaranteed, and actual future results may vary materially. Accordingly, readers are advised not to place undue reliance on forward-looking statements.

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