

## **Sage Geosystems Collaborates with Metamaterial on Subsurface Thermo-Electric Generation as a Sustainable Solution Path**

### ***Project “Pluton” to Enable Geothermal Energy Anywhere in The World – Terawatts of Clean, Secure and Baseload Energy by 2050***

HOUSTON, TX and HALIFAX, NS / ACCESSWIRE / April 22, 2021 / Sage Geosystems, a leader in heat harvesting solutions with modern oilfield expertise and methodologies to enable geothermal energy anywhere in the world (“SAGE”) and Metamaterial Inc. (“META”) (CSE: MMAT) a developer of high-performance functional materials and nanocomposites, today announced that META has collaborated with SAGE to submit a \$10,000,000 initial proposal under an open call for the Advanced Research Projects Agency – Energy (ARPA-E) U.S. Department of Energy. If successful, the project (codenamed “Pluton”) will run over a three-year period. The proposal will validate aspects of META’s NANOWEB® proprietary production methodology to develop a novel Thermo-Electric Generator (TEG) system. SAGE has teamed up with META to model, co-develop, investigate, and validate a new TEG technology for harnessing of geothermal energy in drilling wellbores at selected testing locations.

There is significant interest in accessing geothermal energy from the Earth as it provides an infinite clean and renewable baseload source of energy. Most geothermal operations harvest heat using water, bring the heated water to the surface and produce electricity with an Organic Rankine Cycle (ORC) turbine and generator. A high upfront capital cost means the energy generated may not be cost-competitive with solar or wind. Project Pluton aims to construct a geothermal well (new or existing well) in which we will strategically place thermoelectric generators (TEGs) to generate subsurface electricity from the temperature differences that inherently exist in a geothermal well as heat is harvested. The new TEG solution utilizes the Seebeck effect to generate electricity.

“We rely on the decades of combined expertise of SAGE’s management and their ability to use oil and gas wells to create a new, geothermal alternate future for the hydrocarbon industry with a rare opportunity to support a common clean energy cause,” said George Palikaras, President and CEO of Metamaterial, Inc. “We are excited about the potential acceleration that the ARPA-E competition could offer if our project is selected, and we are working in parallel with SAGE to address technical requirements and demonstrate a prototype in 2021.”

META designs and manufactures advanced materials and performance functional films which are engineered at the nanoscale to control light and other forms of energy. NANOWEB® is a revolutionary transparent conductive film made of an invisible (sub-micron) metal mesh that can be fabricated onto any soft or rigid surface. SAGE combines innovative approaches to heat harvesting with modern oilfield expertise and methodologies to enable geothermal energy anywhere in the world – terawatts of clean, secure and baseload energy by 2050.

“Metamaterial's technology has the potential to deliver breakthroughs across a range of applications and industries, and their unique technologies leverage thin films in transformative ways. Project Pluton has the potential to deliver the precision, cost and scale required to advanced geothermal energy harvesting in drilling wellbores” said Lance Cook, President and Chief Technology Officer of Sage Geosystems. “We look forward to working with Metamaterial on this exciting breakthrough.”

## **About Sage Geosystems**

Sage Geosystems is a newly launched geothermal venture with over 125 years combined experience as executives in the oil and gas industry, with the knowledge and skills to apply oilfield technology to significantly improve the efficiency of geothermal. More information about Sage Geosystems can be found at [www.sagegeo.com](http://www.sagegeo.com).

## **About Metamaterial Inc.**

META delivers previously unachievable performance, across a range of applications, by inventing, designing, developing, and manufacturing sustainable, highly functional materials. Our extensive technology platform enables leading global brands to deliver breakthrough products to their customers in consumer electronics, 5G communications, health and wellness, aerospace, automotive, and clean energy. Our achievements have been widely recognized, including being named a Global Cleantech 100 company. Learn more at [www.metamaterial.com](http://www.metamaterial.com).

## **Forward Looking Information**

This release includes forward-looking information within the meaning of Canadian securities laws regarding META and its business, which may include, but are not limited to, statements with respect to the business strategies and operational activities of META, the outcome of the ARPA-E competition and undertaking of Project Pluton, the timing, duration and success of Project Pluton, the validation of aspects of META's production methodology, the development of a novel TEG system and such TEG system's capabilities. Often but not always, forward-looking information can be identified by the use of words such as "expect", "intends", "anticipated", "believes" or variations (including negative variations) of such words and phrases, or state that certain actions, events or results "may", "could", "would" or "will" be taken, occur or be achieved. Such statements are based on the current expectations and views of future events of the management of META and are based on assumptions and subject to risks and uncertainties. Although the management of META believes that the assumptions underlying these statements are reasonable, they may prove to be incorrect. The forward-looking events and circumstances discussed in this release may not occur and could differ materially as a result of known and unknown risk factors and uncertainties affecting the companies, including risks regarding participating in the ARPA-E competition, the ability and performance of NanoWeb, the development of new technology, the ability of META to commercialize its prototypes, the collaboration between META and SAGE, and the ability of META to expand into other uses. Although META has attempted to identify important factors that could cause actual actions, events or results to differ materially from those described in forward-looking statements, there may be other factors that cause actions, events or results to differ from those anticipated, estimated or intended. Accordingly, readers should not place undue reliance on any forward-looking statements or information. No forward-looking statement can be guaranteed. Except as required by applicable securities laws, forward-looking statements speak only as of the date on which they are made and META does not undertake any obligation to publicly update or revise any forward looking statement, whether as a result of new information, future events, or otherwise.

*The CSE has neither approved nor disapproved the contents of this news release.*

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