Homerun Resources Inc. Executes NREL Enduring Thermal Energy Storage Global Intellectual Property Agreement Including New Patent Application and EMS Integration

written by Raj Shah | December 1, 2025

KEY POINTS

- Homerun Energy USA, Inc. has executed a global Intellectual Property Agreement, or option agreement, with Alliance for Sustainable Energy LLC., the manager and operator of the U.S. Department of Energy's National Renewable Energy Laboratory (NREL) covering the intellectual property related to NREL's particle-based thermal energy storage systems.
- Homerun also announces that a new patent application has been filed for a subject invention resulting under the Cooperative Research and Development Agreement (CRADA No. CRD-23-24168) between Homerun and Alliance. The invention relates to a thermal energy storage (TES) system integrated with silica sand purification that results in advanced silica material that can be utilized in technology and energy end-uses for example battery anode precursor materials.
- Under the commercialization plan, Homerun Energy's AI

Energy Management System (EMS) will be integrated into the NREL particle-based thermal energy storage systems.

- An overview of the system application and integration into use-case scenarios can be found at: **https://homerunresources.com/wp-content/uploads/2025/11/HMR-Enduring-License-IP-2-1.pdf**

December 1, 2025 (Source) – **Homerun Energy USA, Inc. ("Homerun" or the "Company") a newly formed 100% owned subsidiary of Homerun Resources, Inc. (TSXV: HMR) (OTCQB: HMRFF)** is pleased to announce that the Company has signed an Intellectual Property Agreement ("IPA") with Alliance for Sustainable Energy, LLC ("Alliance"), management and operating contractor of the U.S. Department of Energy's National Renewable Energy Laboratory ("NREL").

Brian Leeners, CEO of Homerun stated, "This IPA is the culmination of a two-year partnership between Homerun and NREL and is the realization of the synergy across the Homerun vertical strategy where our unique silica sand facilitates particle-based energy storage and silica calcination purification integrated with the Homerun Energy EMS to complete and advance the potential commercial offerings. Having achieved this level of integration on the capital expended to date, is a complement to the vision and creativity within our electrification strategy. Working with the team at NREL, lead by Zhiwen Ma, has fast-tracked the development cycle to where we are today at the precipice of commercialization into a global electrification revolution demanding economic long-life, long duration energy storage and industrial heating/cooling solutions."

Homerun entered a CRADA with NREL (CRD-23-24168), and subsequently formed a U.S. based startup company, Homerun Energy USA, Inc. that is securing the option for the license to certain

intellectual property belonging to Alliance, which was brought into the IPA and/or developed under the CRADA (“Option”). Alliance is the owner of the Alliance Intellectual Property and is granting the Option through the IPA, for Homerun to advance the technologies toward commercial application. The option period runs for twelve (12) months, subject to ongoing negotiations during that period.

As a part of any license, Alliance requires Homerun to use commercially reasonable efforts to bring Alliance Intellectual Property to market through a thorough, vigorous, and diligent commercialization program. The NREL particle-based thermal energy storage system was originally developed using funding from ARPA-E, and the IP portfolio consists of many issued patents and patent applications filed in the U.S., Canada, and Brazil.

Figure A shows the diagram of long duration energy storage technology using sand-based thermal energy storage developed in the ARPA-E supported project that is under the license agreement.

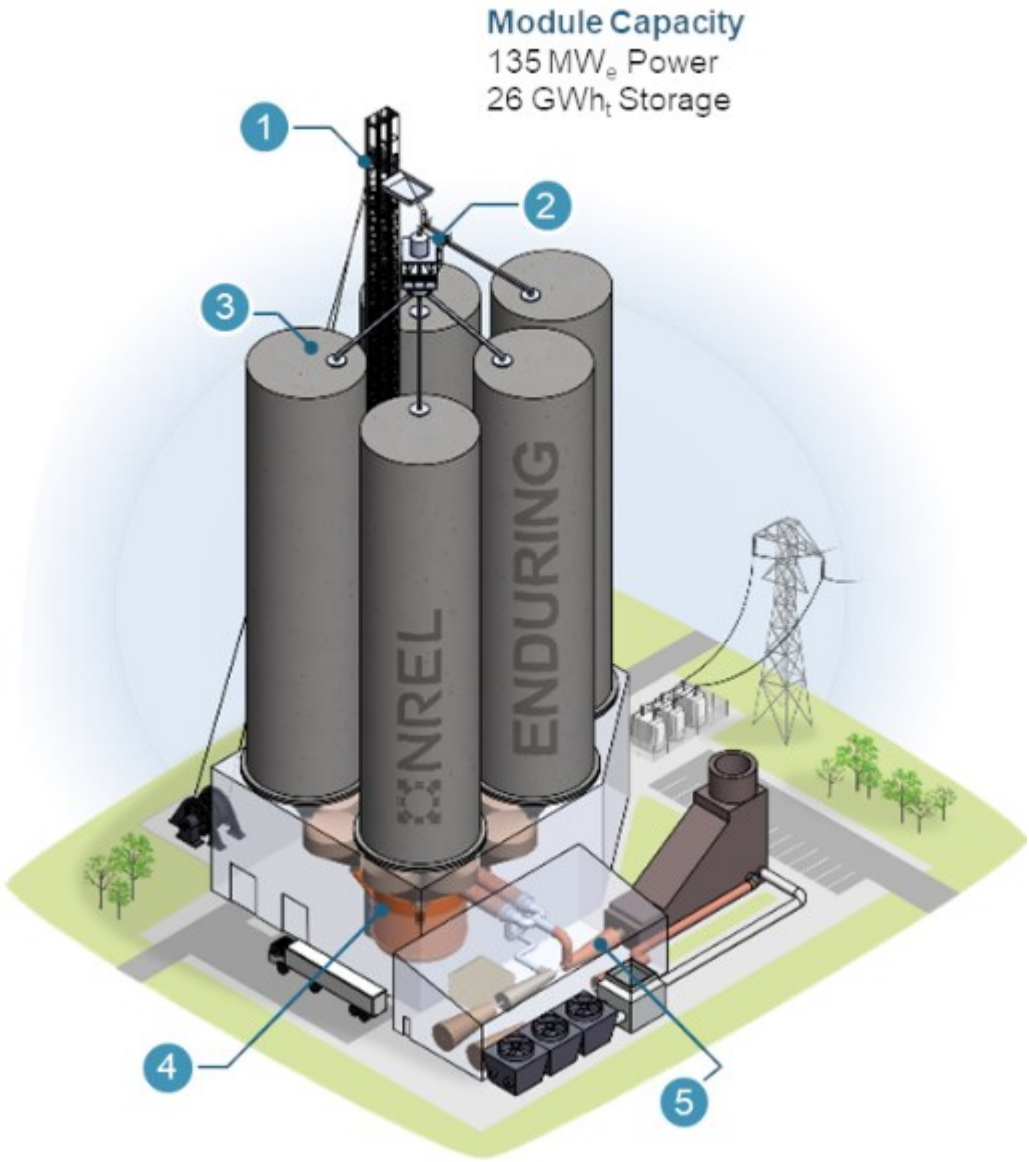

***Figure A**. Sand-Thermal Energy Storage System Consists of: (1) Particle-Lifting Device, (2) Charging Electric Heater, (3) Internally Insulated Storage Silos, (4) Discharge Heat Exchanger, and (5) Combined Cycle Power Generation.*

To view an enhanced version of this graphic, please visit: https://images.newsfilecorp.com/files/4082/276424_08c27c92d41a1970_001full.jpg

Homerun also announces that a new patent application has been filed for the invention resulting under the Cooperative Research and Development Agreement (CRADA No. CRD-23-24168) between

Homerun and Alliance. The invention relates to a thermal energy storage (TES) system integrated with silica sand purification processing.

Key relevant aspects of the innovation include:

- A system comprising a sand thermal energy storage process and a silica purification process where silica sand is used as the thermal energy storage medium and as a final product of the silica purification process.
- The storage charging/discharging devices are contained in a single system, and silica calcination and/or drying devices are contained within that system.

Sustainable Impact

- Synergize energy storage with silica purification and maximizes energy utilization.
- Efficiency: recovers and reuses process heat for both internal plant operations and external industrial customers (pulp & paper, food, chemicals, metallurgical applications and data centres).
- Flexible Revenue: the dual-purpose system opens multiple profit channels in power sales, industrial process heat contracts, and processed silica materials supply.

Under the commercialization plan for the NREL Energy Storage System, Homerun Energy will integrate its advanced AI energy management and control system (EMS). Homerun’s technology is designed to operate across devices and brands to optimize energy capture, maximize storage efficiency and enable smarter, more sustainable energy use. By integrating AI into the edge Hub and into the cloud, Homerun empowers the end-user to better monitor, control and predict energy generation, usage and needs,

enhancing performance while reducing costs and environmental impact and enabling advanced services such as energy trading.

Figure B shows the innovative modular sand thermal energy storage that Homerun is looking to bring to the market as a first step of commercializing the sand energy storage method.

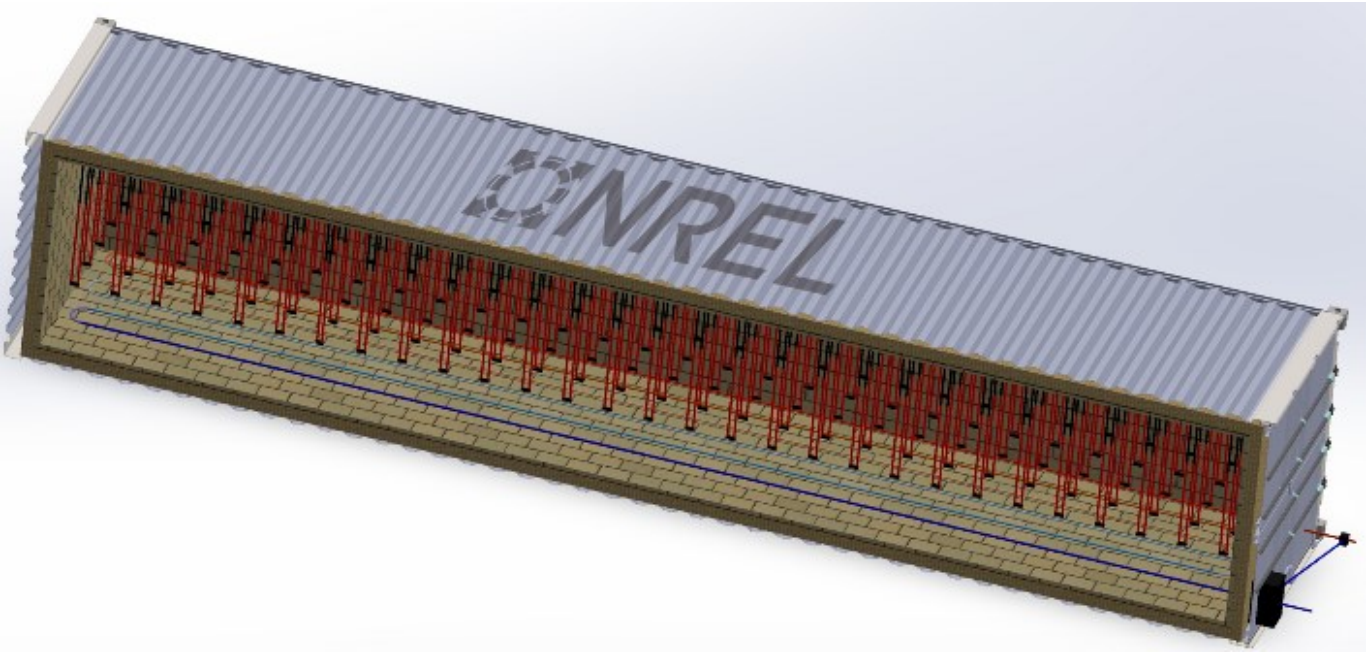

***Figure B**. Modular Sand Thermal Energy Storage System for Heat and/or Power.*

To view an enhanced version of this graphic, please visit: https://images.newsfilecorp.com/files/4082/276424_08c27c92d41a1970_002full.jpg

About

Homerun (https://www.homerunenergy.com/ and https://homerunresources.com/) *Homerun Energy USA, Inc (Reno, NV) is a 100% subsidiary of Homerun Resources, Inc.*

Homerun Resources Inc. (TSXV: HMR) is building the silica-powered backbone of the energy transition across four focused verticals: Silica, Solar, Energy Storage, and Energy Solutions.

Anchored by a unique high-purity low-iron silica resource in Bahia, Brazil, Homerun transforms raw silica into essential products and technologies that accelerate clean power adoption and deliver durable shareholder value.

- Silica: Secure supply and processing of high-purity low-iron silica for mission-critical applications, enabling premium solar glass and advanced energy materials.
- Solar: Development of Latin America's first dedicated 1,000 tonne per day high-efficiency solar glass plant and the commercialization of antimony-free solar glass designed for next-generation photovoltaic performance.
- Energy Storage: Advancement of long-duration, silica-based thermal storage systems and related technologies to decarbonize industrial heat and unlock grid flexibility.
- Energy Solutions: AI-enabled energy management, control systems, and turnkey electrification solutions that reduce costs and optimize renewable generation for commercial and industrial customers.

With disciplined execution, strategic partnerships, and an unwavering commitment to best-in-class ESG practices, Homerun is focused on converting milestones into markets-creating a scalable, vertically integrated platform for clean energy manufacturing in the Americas.

On behalf of the Board of Directors of
Homerun Resources Inc.

"Brian Leeners"

Brian Leeners, CEO & Director
brianleeners@gmail.com / +1 604-862-4184 (WhatsApp)

Tyler Muir, Investor Relations

info@homerunresources.com / +1 306-690-8886 (WhatsApp)

FOR THE ADEQUACY OR ACCURACY OF THIS RELEASE

The information contained herein contains "forward-looking statements" within the meaning of applicable securities legislation. Forward-looking statements relate to information that is based on assumptions of management, forecasts of future results, and estimates of amounts not yet determinable. Any statements that express predictions, expectations, beliefs, plans, projections, objectives, assumptions or future events or performance are not statements of historical fact and may be "forward-looking statements".

Neither the TSX Venture Exchange nor its Regulation Services Provider (as that term is defined in policies of the TSX Venture Exchange) accepts responsibility for the adequacy or accuracy of this release.