Entropy Inc. Provides Operational Update on Glacier CCS Project

(TSX: AAV)

CALGARY, AB, Sept. 28, 2022 /CNW/ - Entropy Inc. ("Entropy" or the "Corporation"), a subsidiary of Advantage Energy Ltd. ("Advantage"), is pleased to provide an operational update on its first post-combustion carbon capture and storage ("CCS") project at the Glacier Gas Plant in Alberta, Canada. Commissioning of Phase 1 (47,000 tonnes per annum of CO2e ("TPA")) has been completed as expected with "first carbon" injected into permanent geological storage during August. Entropy believes this is the world's first commercial project to capture and sequester carbon dioxide from the combustion of natural gas.

Phase 1 of the Glacier project includes one train of Entropy's proprietary Modular Carbon Capture and Storage™ ("MCCS™") process equipment in addition to the pre-installation of waste heat recovery equipment required for Phase 2 of the project. The final total installed cost of Phase 1 was $31 million.

First Month of Operations

The Glacier project is a first-in-kind carbon capture application – capturing CO2 from the exhaust of a natural gas-fired reciprocating engine, with a CO2 concentration of 5.5%. In order to establish optimized process parameters, a multivariate analysis was conducted for the first month of operations using MEA (monoethanolamine, the industry-standard solvent).

The CCS process is currently running at steady state over a multi-week period to gather extended performance data with MEA. Performance to-date of the Entropy equipment with MEA has met or exceeded internal expectations and modeling, including the following notable results:

- Sustained CO2 recovery rates of between 90% and 97%
- Electrical loads have been approximately 35% lower than design assumptions
- Heat duty achieved using MEA (with no catalysts, no additives and linear flow path) is better than expectations. Although Entropy23™ solvent has not been introduced yet at Glacier, results to-date using Entropy's proprietary process design have reaffirmed expectations of recovery rates, operating costs and targeted heat duty

Entropy plans to complete extended baseline MEA data gathering within the next two weeks prior to switching to Entropy23™. Initial efficiency of Entropy23™ is likely to be determined during the fourth quarter of 2022, although establishing long-term operating costs, optimized heat duty and degradation tracking may require up to one year. Operational updates on Entropy23™ performance will be announced as various milestones are achieved.

Glacier Phase 1b Progress

Entropy is preparing to install its patent-pending Integrated Carbon Capture and Storage™ ("iCCS™") equipment at Glacier (Phase 1b) with construction beginning during the fourth quarter of 2022. Phase1b is designed to capture and store an additional 16,000 TPA at an expected cost of approximately $12 million, which includes the expected impacts of inflation. Phase 1b will be the first deployment of Entropy's iCCS™ product, whereby a new 5,000 horsepower gas compressor package will come directly from the fabricator with Entropy's built-in carbon capture process equipment, reducing energy intensity and total installed cost significantly below the cost of a retrofit installation. Phase 1b equipment has been procured and is scheduled to come on-stream by the second quarter of 2023.

Glacier Phase 2 Update

Glacier Phase 2 is designed to capture an additional 136,000 TPA and is expected to reach final investment decision ("FID") by the fourth quarter of 2022 (pending regulatory approvals) and come on-stream by the end of 2023. Once complete, Entropy expects to capture in total 200,000 TPA of CO2 (over 90% of total emissions) from the Glacier Gas Plant and permanently sequester it in a regulator-approved local saline aquifer. The original cost estimate for Phase 2 will be updated in advance of FID to account for inflation. All phases of the Glacier project are anticipated to be eligible for the recently announced refundable investment tax credit of 50% from the Canadian government.

Athabasca Leismer Update

Entropy and Athabasca Oil Corp. ("Athabasca") are preparing to install MCCS™ at Athabasca's Leismer facility with FID for the first phase now expected early in the fourth quarter of 2022 (pending regulatory approvals). The total projected capture rate is over 440,000 TPA to be installed in two phases. The first phase is designed to capture 156,000 TPA with cost estimates now finalized. This project relies on a local geological storage zone so construction remains conditional on timely regulatory approvals. This is expected to be the first commercial CCS project on a once-through steam generator ("OTSG"), which are widely deployed in thermal oil operations globally.

Commercial Update

Entropy has continued to advance numerous projects towards FID with the most active jurisdiction to-date being Alberta. However, the Inflation Reduction Act of 2022 ("IRA") has introduced significant enhancements to the incentive structure for CCS in the United States, including a guaranteed production tax credit of US$85/tonne for a 12-year term for applicable projects. These enhancements have created a stronger CCS incentive market in the United States with significantly more carbon pricing certainty, although the Canadian CCS investment tax credit helps to partially offset such uncertainty in Canada. Entropy intends to focus its investments on the markets that have the highest risk-adjusted return.

About Entropy Inc.:

Entropy is a privately-owned company, founded by Advantage Energy Ltd. and financed by the Brookfield Global Transition Fund, applying sophisticated science and engineering to develop commercial CCS projects. Entropy's technology is expected to deliver commercial profitability with an industry-leading cost structure using proprietary modular carbon capture and storage technology. Entropy intends to deploy this technology in the global effort to reduce and eventually eliminate carbon emissions. Further information is available at www.entropyinc.com.

Advisory

The information in this press release contains certain forward-looking statements, including within the meaning of applicable securities laws. These statements relate to future events or our future intentions or performance. All statements other than statements of historical fact may be forward-looking statements. Forward-looking statements are often, but not always, identified by the use of words such as "anticipate", "continue", "demonstrate", "expect", "may", "can", "will", "believe", "would" and similar expressions and include statements relating to, among other things: that Entropy will be able to establish baseline performance data with MEA by running the CCS equipment at steady state over a multi-week period; that Entropy will gather process performance data using MEA for the next two weeks prior to switching to its patent-pending Entropy23™ solvent for complete performance benchmarking; Entropy's expectations that initial efficiency will be determined during the fourth quarter of 2022 and the establishment of long-term operating costs, optimized heat duty and degradation improvements will require up to one year; that Entropy will announce operational updates on Entropy23™ performance as various milestones are achieved; the TPA expected to be captured and stored at Glacier Phase 1b and the anticipated costs and timing thereof; that Glacier Phase 1b will reduce energy intensity and total installation costs significantly below the cost of a retrofit installation; the anticipated timing that Glacier Phase 1b's equipment will be procured and the anticipated on-stream date; the anticipated timing of the Glacier Phase 2 FID and on-stream date; the TPA expected to be captured from Glacier Phase 2 and that it will be permanently sequestered in a regulator-approved local saline aquifer; that Entropy's cost estimate for Phase 2 will be updated in advance of FID to account for inflation; that all phases of the Glacier project are anticipated to be eligible for the recently announced refundable investment tax credit of 50% from the Canadian government; the anticipated timing of the installation of MCCS™ at Leismer and the anticipated timing of FID for the first phase; the anticipated total projected capture rate at Leismer; that Entropy will focus its investments on the markets that have the highest risk-adjusted return; Entropy's expectations that its technology will deliver commercial profitability with an industry-leading cost structure using proprietary MCCS™ technology; and that Entropy will deploy its technology in the global effort to reduce and eventually eliminate carbon emissions. Entropy's actual decisions, activities, results, performance or achievement could differ materially from those expressed in, or implied by, such forward-looking statements and accordingly, no assurances can be given that any of the events anticipated by the forward-looking statements will transpire or occur or, if any of them do, what benefits that Entropy or Advantage will derive from them.

With respect to forward-looking statements contained in this press release, Entropy has made assumptions regarding, but not limited to: that the Glacier project will successfully capture and sequester carbon from the combustion of natural gas; that the long-term operating costs of Glacier Phase 1 will not be greater than anticipated; that Entropy will achieve its anticipated Glacier Phase 1 performance milestones; that Entropy will be able to establish baseline performance data with MEA by running the CCS equipment at steady state over a multi-week period; that Entropy will receive the regulatory approvals required in connection with the Leismer project and the anticipated timing thereof; that Entropy's existing engagements will lead to completed projects; that Entropy's CCS projects will reach FID; conditions in general economic and financial markets; effects of regulation by governmental agencies; current and future commodity prices and royalty regimes; future exchange rates; royalty rates; future operating costs; availability of skilled labor; the impact of increasing competition; that Entropy will have sufficient cash flow, working capital, debt or equity sources or other financial resources required to fund its capital and operating expenditures and requirements as needed; that Entropy's conduct and results of operations will be consistent with expectations; that Entropy will have the ability to develop its technology in the manner currently contemplated; current or, where applicable, proposed assumed industry conditions, laws and regulations will continue in effect or as anticipated; and the anticipated benefits and results from Entropy's technology are accurate in all material respects. Readers are cautioned that the foregoing

lists of factors are not exhaustive.

These statements involve substantial known and unknown risks and uncertainties, certain of which are beyond Entropy's control, including, but not limited to: the risk that initial efficiency may not be determined during the fourth quarter of 2022 and that the establishment of long-term operating costs, optimized heat duty and degradation improvements may not occur within one year; that Glacier Phase 1b may not store and capture the volume of TPA anticipated at the costs anticipated; that Glacier Phase 1b may not reduce energy intensity and total installation costs below the cost of a retrofit installation; the risk that Glacier Phase 1b's equipment may not be procured or come on-stream when anticipated; the risk that Glacier Phase 2's FID and on-stream date may be later than anticipated; the risk that Glacier Phase 2 may capture less TPA than anticipated; the risk that not all phases of the Glacier project may be eligible for the recently announced refundable investment tax credit of 50% from the Canadian government; the risk that the installation of MCCS™ at Leismer and the FID for the first phase in connection therewith may not occur when anticipated; the risk that Entropy may not receive the regulatory approvals required in connection with the Leismer project when anticipated, or at all; the risk that the long-term testing of Entropy23™ may not lead towards lower installed costs and energy intensity once fully integrated; the risk that Entropy may not focus its investments on the markets that have the highest risk-adjusted return; the risk that Entropy's technology may not deliver commercial profitability with an industry-leading cost structure using proprietary MCCS™ technology; the risk that Entropy's engagements may not lead to completed projects; changes in general economic, market and business conditions; industry conditions; actions by governmental or regulatory authorities including increasing taxes and changes in investment or other regulations; changes in tax laws and incentive programs; changes in carbon tax and credit regimes; competition from other producers; the lack of availability of qualified personnel or management; intellectual property and patent risks; credit risk; changes in laws and regulations including the adoption of new environmental laws and regulations and changes in how they are interpreted and enforced; ability to comply with current and future environmental or other laws; stock market volatility and market valuations; failure to achieve the anticipated benefits and results of Entropy's technology; failure to achieve the anticipated benefits of Entropy's relationships with third parties; ability to obtain required approvals of regulatory authorities; and the ability to access sufficient capital from internal and external sources.

Management has included the above summary of assumptions and risks related to forward-looking information above in order to provide readers with a more complete perspective on Entropy's future operations and such information may not be appropriate for other purposes. Entropy's actual results, performance or achievement could differ materially from those expressed in, or implied by, these forward-looking statements and, accordingly, no assurance can be given that any of the events anticipated by the forward-looking statements will transpire or occur, or if any of them do so, what benefits that Entropy or Advantage will derive therefrom. Readers are cautioned that the foregoing lists of factors are not exhaustive. These forward-looking statements are made as of the date of this news release and Entropy and Advantage disclaim any intent or obligation to update publicly any forward-looking statements, whether as a result of new information, future events or results or otherwise, other than as required by applicable securities laws.

SOURCE Advantage Energy Ltd.

For further information: Mr. Michael Belenkie, President & CEO, Entropy Inc., 1-866-393-0393, info@entropyinc.com, www.entropyinc.com, 2200, 440 - 2nd Avenue SW, Calgary, Alberta T2P 5E9, Phone: (403) 718-8000, Fax: (403) 718-8332, Toll free: 1-866-393-0393

https://advantageog.mediaroom.com/2022-09-28-Entropy-Inc-Provides-Operational-Update-on-Glacier-CCS-Project