

TPG Rise Climate Accelerates Renewable Energy Development with Investment in Monarch Bioenergy Joint Venture

Joins Roeslein Alternative Energy and Smithfield Foods to further develop, implement, and expand next generation renewable natural gas technologies to curb methane emissions

SAN FRANCISCO & FORT WORTH, Texas--(BUSINESS WIRE)--TPG Rise Climate, the climate investing strategy of TPG's global impact investing platform TPG Rise, today announced an investment in Monarch Bioenergy ("Monarch"), a joint venture between Roeslein Alternative Energy ("RAE") and a subsidiary of Smithfield Foods, Inc. (together with its subsidiaries, "Smithfield"). Launched in 2018, Monarch leverages RAE's state-of-the-art technology and Smithfield's innovative sustainable farming practices to capture methane emissions and convert them into carbon-negative renewable natural gas (RNG) to power homes, vehicles and businesses. Chris Roach, President of RAE, will serve as Monarch's Chief Executive Officer, a newly created role.

"We continue to see Monarch as a blueprint for how to address environmental challenges with fully integrated, closed-loop innovations"

Accelerating the transition to renewable energy, greening the industrial sector, and scaling greenhouse gas abating technologies are core pillars in TPG Rise Climate's multi-sector investing strategy. As an equal partner in the JV, TPG Rise Climate will work with RAE and Smithfield to advance agricultural innovation, enhance existing projects in Missouri, and develop new ones in select states across the U.S.

"For years, Rudi Roeslein and his eponymous company RAE have been developing proven, market-based solutions to demands for both sustainable agriculture and renewable energy," said Marc Mezvinsky, Business Unit Partner in TPG Rise. "Applying RAE's anaerobic digester technology, as well as additional circular technologies and environmental protections, to Smithfield's hog farms is a significant and meaningful step towards addressing methane emissions at their source. Advancing and scaling proven GHG abating technologies like those used by Monarch is central to our mission at TPG Rise Climate, and we look forward to working with RAE and Smithfield to advance and drive operational best practices for these emerging technologies."

Monarch's technology and proprietary process are key to creating closed loop, zero-waste systems on large farms. Its anaerobic digester infrastructure captures methane emissions from manure and converts those emissions into pipeline-quality natural gas, which is distributed to RNG markets across the country. The type of biogas created by Monarch's process has consistently received the lowest LCFS carbon intensity scores, reducing greenhouse gas emissions and providing air quality health benefits by reducing surface ozone. Additionally, the byproducts of Monarch's anaerobic digestion are feedstock for other important farm-related circular uses including fertilizer, irrigation, and soil regeneration. The JV is also actively seeking partnerships that would leverage emerging technological solutions to turn effluent waste from the digester process into organic fertilizer, clean water, and compostable fiber. In connection with its mission, Monarch will also explore becoming a Certified B Corporation.

As part of Smithfield's commitment to becoming carbon negative across its U.S. company-owned operations by 2030, the company established Smithfield Renewables in 2017 to unify its GHG-reduction efforts with a focus on emissions reduction and efficiency efforts on farms, processing facilities and across its transportation and logistics network.

"We are excited to integrate TPG Rise Climate's rigorous impact and operational capabilities into Monarch," added Kraig Westerbeek, Vice President of Smithfield Renewables. "TPG Rise Climate's mission to scale emerging climate solutions that result in quantifiable greenhouse gas avoidance is consistent with our commitment to lead in agricultural innovation and sustainability."

"We continue to see Monarch as a blueprint for how to address environmental challenges with fully integrated,

closed-loop innovations,” said RAE Chairman and CEO Rudi Roeslein. “With investments in technology and innovation, farming, both large and small, can be a keystone in the circular economy. Not only do Smithfield’s operations create a natural feedstock for low carbon or carbon negative natural gas, but it also gives us an opportunity to begin to sustainably replant and harvest prairie grasses that naturally sequester carbon, store and filter water, and create biomass for the production of additional RNG.”

As part of RAE’s goal to restore 30 million acres of land to native prairie plants strategically located around waterways, streams, rivers, and highly erodible lands, Monarch and RAE have already planted several thousand acres of prairie grass, providing ecological services and wildlife habitat for monarch butterflies across Missouri. The partnership is actively exploring ways to expand this initiative to other Monarch projects.

“Monarch is taking an innovative approach to tackling methane emissions – one of the most complex challenges we face in the fight against climate change. With additional capital and expertise from TPG Rise Climate, Monarch will continue to advance RAE’s technology and commercialize its adoption to large and small agricultural operations across the country,” said Chris Roach, newly appointed CEO of Monarch.

More information on RAE's sustainability commitments is available [here](#) and information on Smithfield Renewables can be found [here](#).

Kirkland & Ellis is serving as legal advisor to TPG Rise Climate. Hunton Andrews Kurth is serving as legal advisor to Smithfield.

About TPG Rise Climate

TPG Rise Climate is the dedicated climate investing strategy of TPG's global impact investing platform TPG Rise. TPG Rise Climate pursues climate-related investments that benefit from the diverse skills of TPG's investing professionals, the strategic relationships developed across TPG's existing portfolio of climate-focused companies, and a global network of executives and advisors. The fund takes a broad-based sector approach to investment types, from growth equity to value-added infrastructure, and focuses on five climate sub-sectors: clean energy, enabling solutions, decarbonized transport, greening industrials, and agriculture & natural solutions. Jim Coulter, TPG Founding Partner and Executive Chairman, serves as Managing Partner of TPG Rise Climate and former U.S. Treasury Secretary Hank Paulson serves as TPG Rise Climate's Executive Chairman. For more information, please visit www.therisefund.com/tpgriseclimate.

About Roeslein Alternative Energy, LLC

Roeslein Alternative Energy (RAE) is the owner, operator and developer of renewable energy production facilities that convert agricultural and industrial wastes, along with renewable biomass feedstocks to renewable natural gas and sustainable co-products. RAE engages in these business operations with a focus on incorporating native prairie restoration. RAE is a limited liability company with its principal offices located in St. Louis, Missouri. RAE was launched in 2012 by Rudi Roeslein, co-founder and CEO of St. Louis-based Roeslein and Associates, Inc. (a global leader in engineering, modular fabrication, and construction of industrial plant facilities).

About Smithfield Foods, Inc.

Headquartered in Smithfield, Va. since 1936, Smithfield Foods, Inc. is an American food company with agricultural roots and a global reach. With more than 60,000 jobs globally, we are dedicated to producing "Good food. Responsibly®" and serve as one of the world's leading vertically integrated protein companies. We have pioneered sustainability standards for more than two decades, including our industry-leading commitments to become carbon negative in our U.S. company-owned operations and reduce GHG emissions 30 percent across our entire U.S. value chain by 2030. We believe in the power of protein to end food insecurity and have donated hundreds of millions of food servings to our communities. Smithfield boasts a portfolio of high-quality iconic brands, such as Smithfield®, Eckrich® and Nathan's Famous®, among many others. For more information, visit www.smithfieldfoods.com, and connect with us on Facebook, Twitter, LinkedIn and Instagram.

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