

ClearFlame Engine Technologies Raises \$30 Million In Series B Funding

Company Applying Innovation To Power Heavy-Duty Diesel Engines With Renewable Fuels

Geneva, IL, March 9, 2023 – Chicago-based <u>ClearFlame Engine Technologies</u> has raised \$30 million in Series B funding to bring to market innovative solutions that power heavy-duty engines with clean, renewable fuels and create a viable business solution to reduce carbon and soot.

The latest investments were led by Mercuria Energy Group, one of the world's largest privately held energy and commodities companies, with Mercuria and Breakthrough Energy Ventures both making second investments. New investors, including mining corporation Rio Tinto, and WIND Ventures, the strategic venture arm of Copec, one of Latin America's leading mobility and energy companies, see ClearFlame as part of a holistic suite of strategies to advance environmental, social and governance (ESG) goals.

"ClearFlame continues gaining momentum with technology that heavy-duty equipment users can deploy to more quickly and affordably meet critical ESG goals," said BJ Johnson, ClearFlame Chief Executive Officer and company co-founder. "Federal Department of Energy funding moved us from concept to patent. Series A funding propelled us from patent to pilot. This latest investment round can accelerate us from pilot to proven product in multiple markets, starting with long-haul trucks."

The company's patented technology runs on a range of renewable liquid fuels. It can efficiently adapt to markets like long-haul trucking, offering the same power, durability and performance as today's diesel engines while readily integrating into existing manufacturing, fueling, maintenance and repair ecosystems. In pursuit of penetrating the more than \$200 billion global trucking market, the company is piloting five trucks in collaboration with some of the largest fleet operators in North America. It is also exploring partnerships and applications for the mining, agriculture, and power generation sectors.

"Mercuria was an early adopter of various environmental products in its portfolio and has committed more than fifty percent of all new investments to the energy transition," said Boris Bystrov of Mercuria. "Mercuria's strategic investment in ClearFlame's technology reflects the company's continued commitment to renewable fuels as part of the energy transition and its belief that ClearFlame's technology can economically decarbonize the heavy-duty industry by utilizing the existing liquid fueling infrastructure."

"The diesel engine is the backbone of heavy industry and its advantages make it hard for clean alternatives to compete," said Carmichael Roberts, Breakthrough Energy Ventures. "ClearFlame has pulled together a new generation of entrepreneurs and veteran engineering talent that have unlocked a viable, cutting-edge solution."

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Brian Walsh of WIND Ventures noted, "We are excited to partner with ClearFlame as they expand into mining, which is a key market for Copec in Latin America. The mining sector is a heavy user of diesel fuel and ClearFlame's technology can likely enable a rapid transition to methanol fuel for lower carbon emissions while maintaining diesel-like performance."

Johnson and ClearFlame Chief Technology Officer and co-founder Julie Blumreiter dedicated their doctoral research at Stanford University to finding solutions to mitigate climate change and achieve carbon reduction goals by freeing heavy-duty diesel engines from their reliance on fossil fuels. Diesel fuel consumption accounts for approximately 26% of overall CO2 emissions from the U.S. transportation sector. While electric powertrains face significant barriers for heavy-duty applications, the technology ClearFlame developed can meet heavy-duty performance requirements while offering better lifecycle greenhouse gas emissions reduction than EV by nearly 61% using lowsoot renewable fuels. A total cost of ownership study prepared by industry analysts Gladstein, Neandross, and Associates found that using ClearFlame engines would reduce lifetime ownership costs for fleet operators.

"The effort to achieve a sustainable clean energy and fossil-free future has to be inclusive and comprehensive," noted Blumreiter. "We welcome all partners who see our innovation as a means to make tomorrow's ESG goals today's realities."

ClearFlame secured \$17 million in Series A financing in 2021, led by Breakthrough Energy Ventures, with participation from Mercuria, John Deere and Clean Energy Ventures. Its initial \$3 million Series Seed Financing was also led by Clean Energy Ventures and completed in early 2020. The company has been recognized as "<u>Next Big</u> <u>Thing in Tech</u>" by *Fast Company*, as one of the "<u>Most Promising Sustainability Startups in Transportation by top</u> <u>venture capitalists (VCs)</u>" according to *Business Insider*, and one of the "<u>3 Truck Trends to Watch for in 2023</u>" by *Heavy Duty Trucking*.

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For further information, please contact: Melinda Swan, Chief Marketing Officer <u>Melinda@clearflame.com</u> 614/571-9584