

# Enginuity Power Systems' Hydrogen Fueled OP4S Engine

*Findings of the technical paper 'Potential of a Hydrogen Fueled Opposed-Piston Four Stroke Engine' present a 30% improvement over current conventional engines*

ALEXANDRIA, VA, UNITED STATES, August 1, 2023 /EINPresswire.com/ -- [Enginuity Power Systems](#) (Enginuity)

has designed a hydrogen fueled opposed-piston four stroke (OP4S) engine capable of a 30% improvement in brake thermal efficiency over conventional engines and is able to meet modern emission regulations without the need for after-treatment systems.



Enginuity Power Systems is headquartered in Alexandria, Virginia with manufacturing based in Clinton Township, Michigan.

“

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*Dr. Phil Zoldak*

By utilizing the benefits of hydrogen's (H2) low flammability limit and fast laminar flame speeds, Enginuity has developed a lean burn H2 fueled strategy, utilizing boosted H2 direct injection (DI) spark-ignited (SI) operation combined with the thermodynamic benefits of the OP4S engine. The R&D engineers at Enginuity conducted the engine simulation to validate its strategy using advanced 1D CAE tools and have since progressed to 3D CFD simulation and development of a novel ignitor technology for this engine; this in collaboration with Wayne State University.

Enginuity's Vice President of Engineering, [Dr. Phil Zoldak](#), says about the unique benefits of this development, “Our OP4S has a proven thermodynamic advantage over conventional IC engines. By combining the inherent advantages of the Enginuity OP4S along with the novel lean burn boosted H2 DI strategy the team here at Enginuity has been able to realize 30% improvement in BTE during a peak torque operation and provides a net zero CO2 emissions pathway for our products.”

From Dr. Omid Samimi Abianeh, Assistant Professor, Mechanical Engineering at Wayne State

University, "Our collaboration with Dr. Zoldak and the entire Enginuity Power Systems team is truly inspiring. We believe that we are at the forefront of pioneering advancements in sustainable energy solutions by focusing on the development of this next-generation hydrogen/injector – which is cutting edge technology that is poised to revolutionize lean burn combustion engines."

Dr. Samimi goes on further to add "through a meticulous blend of experimental ingenuity and sophisticated simulations, we are unlocking the true potential of hydrogen as a clean and efficient fuel source. The identified potential here paves the way for a greener, more sustainable future."

The hydrogen OP4S technology is directly applicable to the Enginuity E|8kW and E|20kW products once infrastructure for H2 delivery by way of natural gas pipelines becomes available.

Enginuity products have already been recognized and awarded as being viable environmental and sustainable solutions. Net zero CO2 emissions with water as the main product of combustion is a major benefit of this advancement. This supports the Enginuity mission by working towards a cleaner and greener future, putting clean power in the hands of the people.

#### About Enginuity Power Systems:

Enginuity Power Systems is an award-winning technology company revolutionizing the distributed energy generation market. Committed to advancing energy efficiency and sustainability, Enginuity is inventing new technologies for homes, commercial businesses, and military applications that enable private power generation for higher efficiency performance, cleaner energy, resiliency, and energy cost savings. Visit [www.EnginuityPowerSystems.com](http://www.EnginuityPowerSystems.com) and stay connected with Enginuity Power Systems on social media and content sharing platforms, including [LinkedIn](#), Instagram, Facebook, Twitter, YouTube and Vimeo.

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