



## **SENES Consultants Limited**

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### **TO WHOM IT MAY CONCERN**

Mr. David Strain requested that I provide a letter of support relating to his invention currently patented in the USA and Europe. (The Canadian patent is pending.) He also requested that I state my credentials allowing the reader some assessment of my opinion.

I am Donald M. Gorber, Ph.D., P.Eng., current and founding President of SENES Consultants Limited established in Ontario in 1980. I hold a doctorate degree in Chemical Engineering and have more than thirty-five years experience in the energy and environmental field.

Mr. Strain made a presentation to SENES to discuss his invention. This presentation involved myself and our senior energy scientist/engineer, Dr Mehran Monabbati and provided us with a clear understanding of the principles relating to the invention.

The fundamental basis of the invention is the efficiency differential when comparing a conventional hydraulic actuator to the new diamond-shaped actuator. The efficiency advantage of the new actuator was clearly demonstrated during his presentation. Dr. Monabbati, who holds a doctorate degree in Chemical Engineering, tested the actual model, at both Mr. Strain's location and at SENES, reviewed certifications for the test equipment, and was able to confirm Mr. Strain's claims.

The tests indicated an efficiency advantage of approximately 17% over conventional actuators.

The work done through the stroke of the diamond-shaped actuator can push back a conventional cylindrical actuator. The displacement volume of conventional actuator is slightly greater than that volume of fluid required by the diamond-shaped actuator to accomplish the work. This indicates that the diamond-shaped actuator requires less volume of hydraulic fluid to accomplish the work compared to that of the conventional actuator (at the same pressure).

It should be mentioned that in an old 1874 USA patent (No. 147,519), Mr. Terrance Reilley demonstrated the same efficiency advantage. However, specific knowledge and recent technological advancement in mechanical equipment and instrumentation were required to achieve the results of Mr. Strain's invention.

I believe that Mr. Strain's invention will advance the scientific community's understanding of thermodynamics relating to pressurized fluids and energy to a new level. If fully developed the invention has the potential to reduce energy and as a result a reduction in the use of fossil fuels, thus assisting in the battle against climate change.

Yours very truly,

**SENES Consultants Limited**

A handwritten signature in black ink that reads "Donald M. Gorber". The signature is written in a cursive, flowing style.

Donald M. Gorber, Ph.D., P.Eng.  
President