

## GALILEO RESEARCH, INC.

*Multifuel Powerplant Technology Development*

P.O BOX 25  
TORRINGTON, CT 06790-0025  
(203) 542-5693

Mr. Tom Gross  
EE-30 Room 6B094  
Department of Energy  
1000 Independence Avenue, S.W.  
Washington, DC 20585

May 12, 1994

Dear Mr. Gross,

We have recently met with Dr. Mary L. Good, Under Secretary for Technology at the U.S. Department of Commerce and she has referred us to you.

We would like to introduce ourselves and the technology we are working on. Galileo Research, Inc. is a Connecticut based company pioneering the development of an exciting and practical technology in the area of electrical power generation for Hybrid Electric vehicles and utility cogeneration. Dr. Robert Law, V.P. Research & Development, is exploring a technology that was not feasible a few years ago.

Conventional internal combustion engines are not well suited for the production of electricity to be used in Hybrid Electric vehicles. They have inherent emission problems and produce rotational torque that must turn a generator. The combined IC engine and generator are relatively heavy and bulky with poor efficiencies in many respects such as thermal and conversion efficiencies.

Fuel Cell and Sterling Engine technologies are also heavy and bulky with no near term solutions to these problems. Rotary engine technology has poor emissions and high fuel consumption. The Gas Turbine Engine (i.e. Turbo-alternator/generator) is noisy, must move a tremendous amount of air, and utilize a substantial exhaust system.

Upon recognizing the fact that the automotive industry is adapting the generator to its power plants in order to produce electricity in powering Hybrid Electric vehicles, we have started with a clean sheet of paper and conceptually designed a multifuel power plant to achieve this goal.

With recent advances in electronics and materials, we have found the free piston engine concept that did not work several years ago, now becomes feasible for the production of electricity. The mechanism as we have defined it thus far, uses free floating pistons with permanent magnets attached to a common rod for the generation of electricity. The combustion system within this concept is not limited to existing engine confines, in that there is no crankshaft within the system, which enables the mechanism

to achieve various compression ratios. The free piston mechanism is used to complement the combustion process, rather than the engine constraints dictating combustion boundaries as in conventional engines. Our initial studies indicate that CARB LEV and ULEV emission levels may be possible along with an increase in fuel economy.

We are looking for funding and have prepared a proposal for an initial feasibility study, defining this power plant in preparation for prototype construction. Although we do not know of any upcoming programs, we are asking for your help and direction in offering this technology to the Department of Energy.

We would like to discuss this issue and meet with you at your convenience. Please let us know what time and place would be suitable for you. Thank you very much.

Sincerely,

Kenneth A. Galitello, Jr.  
President



# GALILEO RESEARCH, INC.

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P.O BOX 25  
TORRINGTON, CT 06790-0025  
(203) 542-5693

Mr. Pandit Patil  
5G030  
Department of Energy  
1000 Independence Avenue, S.W.  
Washington, DC 20585

May 12, 1994

Dear Mr. Patil,

We have recently met with Dr. Mary L. Good, Under Secretary for Technology at the U.S. Department of Commerce and she has referred us to you.

We would like to introduce ourselves and the technology we are working on. Galileo Research, Inc. is a Connecticut based company pioneering the development of an exciting and practical technology in the area of electrical power generation for Hybrid Electric vehicles and utility cogeneration. Dr. Robert Law, V.P. Research & Development, is exploring a technology that was not feasible a few years ago.

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Sincerely,

Kenneth A. Galitello, Jr.  
President



## Department of Energy

Washington, DC 20585  
November 17, 1994

Mr. Kenneth A. Galitello Jr.  
Galileo Research, Inc.  
Post Office Box 25  
Torrington, CT 06790-0025

Dear Mr. Galitello:

Thank you for your letter dated July 11, 1994, to President Clinton seeking assistance to develop your company's high specific energy free piston engine-generator concept. I apologize for the delay in responding to you.

I regret you have had difficulties in reaching the appropriate organization within the Federal establishment. The Energy-Related Inventions Program at the National Institute of Standards and Technology (NIST), which falls under the auspices of the Departments of Energy and Commerce, was established by Congress specifically for the purpose of evaluating the many concepts and invention ideas we receive from the public. It is my understanding that your concept is currently being reevaluated by the NIST staff.

One of the unique features of the NIST evaluation system is that it was designed in anticipation that some technologies might not be fully understood, even by professionals in the field. The system allows the inventor to reenter the evaluation process by providing supplementary information addressing identified problem areas. I assure you that the NIST staff will provide you with an objective evaluation.

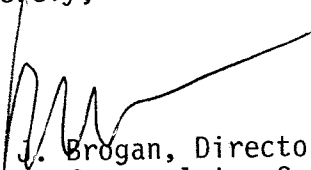
As another avenue for possible funding opportunities, you may want to obtain a copy of the annual publication, Catalog of Federal Domestic Assistance, which lists and explains grant programs available from all Federal departments and agencies. The catalog is available for reference at many larger public libraries and most university libraries. It is also available by subscription from the Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20401.

In addition, you might be interested in the Partnership for a New Generation of Vehicles (PNGV) program. Procedures for firms to compete for funds in the PNGV are outlined in the enclosed pamphlet.



We appreciate your interest in developing advanced transportation technologies and wish you much success with your endeavor.

Sincerely,



John J. Brogan, Director  
Office of Propulsion Systems  
Transportation Technologies  
Energy Efficiency and Renewable Energy

Enclosure

cc: Jennifer McCarthy  
The White House