



# *Comisión Nacional de Energía*

**República Dominicana**  
**“Año del Libro y la Lectura”**  
RNC:4-01-51530-1

February 28, 2007

**CNE/xxx/2007**

Mr. John Rivera  
CEO USSEC

Hi, John.

This letter is to acknowledge my gratitude and profound satisfaction to have been your guest, to have visited your home and your formidable project --the U.S.S.E.C. -- at Natchez, Mississippi., on the second week of February, and in the company of Vice Admiral (r) Dr. Radhamés Lora, whom I consider an excellent choice to be the man to lead the future expansion of your project towards Latin America's bio-fuels potential markets.

Dr. Lora is a much admired retired Dominican navy officer, who was first famous in sports by winning national championships and international medals for the Dominican delegations of Judo abroad, may also be the only General with a master in agricultural economics and a Ph.D. on natural resources management, obtained at Cornell University. In addition, he has an extensive line of services and accomplishments in different governmental areas all of vital importance for the environment and social development sectors. This curriculum gives him the required insight and motivation to promote the creation of the challenging and promising new "agro-industrial-energy sector", which your technological breakthroughs will finally make possible at large scales. It will also enable him to offer meaning and sound solutions to most Caribbean and South American countries that are crippling due to dependency on imported fossils.

In the case of the Dominican Republic, the creation of the agro-industrial energy sector means solving more than just the absolute dependency on imported fossil fuels. It could also translate into other potential vital achievements such as: revitalizing and diversifying the agricultural sector, strategically improving hard currency savings and the balance of payments, improving and preserving the fragile environment of the island and improving the frontier region's economy (which, by the way could also help improve Haiti's future, our only land-neighbor and by far the poorest country in the Western Hemisphere).

I have been involved in searching and promoting alternative energies for the last 30 years-first on my own and, in the last 10 years as a governmental executive. In all this time, I had never seen something as impressive and competitive in bio-fuel production technology as what we witnessed and were exposed to at your starting plant --US. S.E.C.- in Natchez. To tell you the truth, my main concern is the likely energy sector's disbelief and disdain in regards to your



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invention. Fortunately –and even more impressive- is the fact that you are about to prove it at a very large scale production plant. Enhorabuena!

As you may know, I obtained my M.S. degree from New Mexico State University, back in '79 . My graduation project was a feasibility study on the alternative of using biomass as a substitute for fossil fuels in generating electricity for the Dominican Republic . Since then –almost thirty years ago- I have been facing negative attitudes, disbelief and denials regarding the immense potential benefits (economical, environmental and labor) of said alternative for our country. In spite of this, I have been promoting technologies and alternatives –already successful in other countries such as Brazil, India, and some European countries. My efforts had always been practically in vain, for all the projects required some form of government support, “subsidy” – or even special legislation, which we are finally about to obtain . The area of biofuels has been particularly more difficult, I think , due to the poor perceptions on the validity and market value solutions provided so far by conventional biofuels technologies – which are now only a fraction of what I saw a couple of weeks ago regarding your excellent biofuel technology and what it can offer!!

For instance, most pyrolysis processes I have been aware of will produce only a few hundred kw/hr. per ton at the most –and with no industrial record to prove it or sustain such claims-. One hears now new claims of a one to one ratio (one kw-hr per kilogram of biomass) which will add up to one MW per ton of biomass, but no one shows those results in large scale projects. In the sugar industry, you need to process three tons of sugar cane to produce a ton of baggass, and maximum outputs of electricity with baggasses as fuel seldom reach 400 kw-hr per ton of baggass. Actually, the common figure is about 200 kw-hr or less. Your technology, on the other hand, seems to be able to produce wide above 2000 kw-hr per ton!! (if all fuels produced are use for electric production). More importantly, the ethanol production from sugar cane (the most productive of biomasses according to many) never reaches more than 22 gallons per ton of sugar cane, using acid hydrolysis, the standard technology worldwide.

Some sources claim that if enzymatic hydrolysis were to be used instead, much larger outputs of ethanol could be obtained of most celluloses. This is something I have been personally involved with since at the Dominican Institute of Technology (INDOTEC) --where I used to work when I first met you-- Dr. Diógenes Aybar –a Dominican scientist- tested an original enzymatic hydrolysis process of his creation that projected outputs of ethanol of 80 gl./ton of cellulose, and for years I have been unable to get support for deve loping this case and scale it up beyond the lab level, since it has been considered impossible.

Well, you have already proved it more than possible, since by producing as you do : 160 gl/ton of liquid biofuels, out of soy beans, you are actually obtainin g a maximum of biodiesel-equivalent out of the oil component (which has a stand ard production of 60 to 80 gallons of biodiesel per ton of soy, according to my memory) which you call your “heavy liquid biofuel”,



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a substitute of diesel fuel, and around 80 gallons more of a “light liquid biofuel” which is a substitute for gasoline (as ethanol).

See? Your formidable pyrolysis process makes a maximum of biodiesel equivalent (as if all the soy were to be used for biodiesel with a very efficient extraction of the oil process first, and a very efficient esterification process later, all saved) and a very efficient enzymatic hydrolysis later (that only Dr. Aybar could have achieved, since conventional enzymatic hydrolysis only produces around 30 to 40 gl. of ethanol per ton of cellulose) and which you have achieved with the light biofuel out of the cellulose component of the soy beans presumably and with the same and simpler machinery –simultaneously- and saving an enzymatic hydrolysis plant which has always been said to be more expensive than the standard acid hydrolysis plants. **YOU HAVE THE EQUIVALENT OF TWO BIOREFINERIES (one for ethanol and one for biodiesel) INTEGRATED IN A MUCH SIMPLER AND MUCH MORE EFFICIENT ONE!!**

This is the technology that far many -all over the world- have been waiting for to overcome the fossil and atomic fuels dependency and the global warming, the environmental nightmare that is unfolding due to how much this conventional energy paradigm has spread and overcome our civilization. Nevertheless, many other searches for new alternative energy technologies are on the way of which I know of, even on discredited issues as Cold Fusion, Overunity and Zero Point Energy. So far though, no one seems remotely as close to success and in large scale production as your case, John. Congratulations!!, and thanks for the great attention you and your lovely wife and all those with you showed us in our stay with you. You have come a long way from what you showed me in Tampa almost 10 years ago about the “aquafuel”, the “magnegas” and the pyrolysis with organic residues.

I hope to be of help in whatever I may, and I will for sure support Radhamé's in any way I can also, since I have no doubt it will be for the benefit of my country and the world at large. For instance, in the Dominican Republic, we are now consuming around 600 million gallons a year of fossil fuels for electricity alone. Transportation consumption is even higher. All this could well be substituted by local biofuels if your technology is used.

Sincerely,

Doroteo A. Rodríguez Y., M.Sc.  
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Dominican National Energy Commission