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January 5, 2017

Steven Bannon
The White House

Re: Plasma Igniter — A proven, state-of-the-art, free-enterprise solution to energy efficiency and emission control in internal combustion engines.

Dear Mr. Bannon,

As the incoming Trump administration undertakes historic efforts to make America great again we are grateful, relieved and optimistic. An administration that genuinely recognizes the power of free-market solutions and believes in building broad-based economic strength and sound energy—as policy fundamentals—has definitely caught our attention and enthusiastic support.

We are free-market innovators, after all. Over the last 10 years we've developed, tested, and proven an engine ignition technology that is economically and environmentally *transformative* for *everyone*, right now—not 10 years from now and not just for those who can afford it. Our development processes and testing occurred at West Virginia University's world-renowned CAFEE lab (Center for Alternative Fuels, Engines and Emissions).

The Plasma Igniter is a 21st century replacement for the spark plug, and it's just moments away from market entry; it consumes over 50 percent less fuel, and cuts carbon emissions by more than half for equivalent transportation efficiency. Unlike spark plugs, plasma ignition technology also merges effectively with today's digital engine systems to give transportation systems the ability to achieve efficiencies never possible before. (A brief overview highlighting the technology's dramatic fundamentals appears in Attachment "A.")

We think our transformative technology is poised to play a meaningful role in making America great again.

Global demand for energy grows unremittingly, as do cultural, economic, and environmental imperatives (pressure) to dramatically reduce carbon emissions and energy use. CARB, the EPA and other groups and agencies push manufacturers to make engines far more energy efficient; they impose standards difficult-to-meet for current ignition systems, in contrast to the Radio Frequency Plasma Igniter. Energy cost is a major factor in our economy. Reducing energy use has been a long historic struggle, especially in the auto industry. Real energy-efficiency and emission solutions are elusive—change grinds forward haltingly.

But today—happily coinciding with an incoming, pro-innovation administration—the answer to these vexing problems is now at hand—for real—through an innovative leap that is 100 percent American made. The economic and environmental implications of the Plasma Igniter technology are profound and may well affect or inform U.S. economic, energy, and environmental policy. We believe the administration should be duly informed of the technology’s immediate potential and promise for the U.S. economy and environment, and welcome the opportunity to personally present and explain the Plasma Igniter (and its implications) to administration officials in a position to foster/facilitate/guide real, effective, positive change.

We also request the opportunity to propose and explore (nonfinancial) ways the administration can support rapid market adoption/embrace of the technology.

With policy support and programmatic inclusion—as part of this administration’s dedication to restoring economic vitality in America through free-market solutions—our energy-saving technology can enter the market faster, dramatically reduce U.S. fuel consumption, lower emissions, and improve the environment and economics for everyone. One technology effecting positive change on a scale rarely seen.

We at Plasma Igniter, LLC are thrilled with President-elect Trump’s election and the caliber of his incoming administration—because they “get” that unleashing markets and innovators from regulatory chains drives big solutions organically. Unleashing innovative potential—and allowing what works to emerge naturally and free of government planners—is essential policy for a country that would be truly free and prosperous. Unleashing and getting behind free-market innovators = a powerful economy.

We live these principles because we are those innovators. We get what our technological (paradigm-shifting) innovation means to the U.S. (and world) economy, and everyone participating in those economies. By joining in this administration’s broader free-market efforts, Plasma Igniter’s ignition technology can literally change the world.

Strong, meaningful, high-value transformative technologies that deliver real-world solutions need advocacy, attention, and inclusion in the public political dialog. The Plasma Igniter is a great and highly viable example of the kind of economy-building technology that pro-free-market advocates can and should get behind and promote.

We respectfully request the opportunity to share our technology with the Trump administration, and look forward to your reply.

Very best regards,

James E. Smith, Ph. D.
President, Plasma Igniter, LLC

Attachment “A”

Plasma Igniter — A Timely Transportation Breakthrough: The Dual Signal, Radio Frequency Plasma Igniter System

Problem/Background

Today's ignition systems are centered on the spark plug—the long-standing “go to” source to ignite most combustion engines. The problem with spark plugs is this: it is 100-year-old technology that’s reached the end of its effective life cycle. Even the best of today's plugs are not able to meet upcoming emission standards, they waste fuel, and they offer little hope of significantly increased vehicle/fuel efficiency.

Technology Description

Plasma Igniter has developed the patented Coaxial Cavity Resonator Ignition System (CCRIS), a compact, dual signal next generation ignition system. The heart of the system, the Quarter Wave Coaxial Cavity Resonator (QWCCR), is a novel use of a microwave plasma source as a spark plug replacement. Testing demonstrates that the CCRIS is superior in igniting conventional lean fuel/air mixtures and particularly effective in igniting alternative fuels. The CCRIS is effective as a low-energy ignition source at high compression ratios, creates lower levels of controlled emissions and, most importantly, provides on-board diagnostic capabilities for real-time ignition and combustion modifications.

Technology Status

The Plasma Igniter technology and its various patents were developed over the last decade by various groups at West Virginia University led by Dr. James E. Smith (Former 2009 President of SAE International). The technology is proven and tested against other potential ignition technologies—beating them hands down. Research testing is complete and final implementation engine testing phase is underway. Plasma Igniter, LLC holds/controls all PI technology rights and is now interacting with industry players to sublicense it for manufacturing and expeditious market introduction. All tests conducted at West Virginia University's CAFEE labs.

The Plasma Igniter Benefits Include:

- **Vehicle/Fuel Efficiencies** — Creates historically impossible vehicle/fuel efficiencies, in part by interacting effectively with today’s onboard computer diagnostics and affording real-time in-cylinder measurements. More efficient combustion of fuel, allowing for leaner burn and more complete combustion. Allows use of leaner fuel-air ratios and a variety of gaseous multi-fuel mixtures, and allows the ignition of problematic, multi-fuel mixtures and gaseous fuels.
- **Exceeds Standards** — Enables manufactures to immediately *far exceed* existing and forthcoming compliance standards (CAFÉ and other emission and fuel-efficiency standards).
- **Lower Temperature Combustion** — Results in reduction of complex NOx and SOx emissions.
- **Lower Emissions** — Reduces the need for catalytic converters, eliminates some emission elements altogether, reduces CO₂ emissions, and allows much-improved environmental stewardship.
- **Works with Natural Gas** — CCRIS is ideally suited for engines fueled by natural gas.
- **Lower Fuel Needs** — Permits smaller gas tanks, lighter cars, and other design-choice improvements.
- **Quickly Implemented / Readily Adopted** — Advanced energy technology with geopolitical, economic, and environmental ramifications, but that allows continued use of existing internal combustion engine systems, features and designs (with minor adaptation). This “plug and play” characteristic makes the CCRIS an easy option for upgrading existing engines in stationary and mobile applications.
- **Major Breakthrough** — Represents a game-changing breakthrough for internal combustion engines that dramatically extends fossil-fuel supplies and reduces the cost of their production and use.

Imagine what never-before-seen fuel/vehicle-efficiency increases and emission reductions will mean to the world!