30 June, 2009

Mr. Matthew Crosby  
Regulatory Analyst, Policy and Planning Division  
California Public Utility Commission  
505 Van Ness Avenue  
San Francisco, CA  94102


Dear Mr. Crosby,

Headquartered in Santa Ana, Calif., IMPCO Technologies, Inc. is the world’s leading source of advanced alternative fuels systems technology and components for internal combustion engines. Our company designs, manufactures, markets and supplies advanced products and systems to enable internal combustion engines to run on clean burning gaseous fuels such as natural gas, propane and biogas. These systems optimize efficiency and performance while reducing emissions.

IMPCO Technologies is grateful for the opportunity to comment on the California Public Utilities Commission (CPUC) Staff White Paper on “Light-Duty Vehicle Electrification in California: Potential Barriers and Opportunities”. The complexities of the ever evolving alternative fuels landscape present as many challenges to a better future as it does opportunities.

As in your White Paper, we at IMPCO believe alternative forms of energy used in transportation are imperative to reducing GHG emissions. We further believe that electric vehicles will play a vital role in achieving California’s GHG emissions targets. However, it is critical to the environmental and economic health of California to keep in mind the most practical measures available to attain these goals. Such measures require a balance between GHG friendly resources and the efficiency by which they are converted into useable energy; and must be commensurate with commercial implications of deployment. Otherwise, we risk not achieving what all consider very aggressive goals.

Consequently, we offer the comments below to assist the CPUC in pursuing actions necessary to protect the health of our communities, preserve the environment and support our economy:

**Clarification about FuelMaker:**
On page 57 to 58, there is the statement, “CNG vehicle drivers have the option to refuel vehicles using in-home CNG fueling equipment, although a major home refill unit company recently declared insolvency.” Of course, this statement refers to FuelMaker who manufactures the Phill product.
Although FuelMaker declared bankruptcy on April 2nd 2009, the products that were developed over the past 20 year will live on through Fuel Systems Solutions (FSS) purchase of FuelMaker’s assets and technology.

FSS is composed of two operating subsidiaries: IMPCO Technologies and BRC. IMPCO Technologies is a leader in the heavy duty, industrial, power generation and stationary engines sectors. BRC is a leader in the light duty and automobile alternative fuel sectors and has established alliances with several major automobile manufacturers for OEM (Original Equipment Manufacturer) projects.

FSS, through its BRC subsidiary, will continue manufacturing and supporting both the Vehicle Refueling Appliance and Phill, as well as the other Home Refueling Appliance product lines. With its state of the art manufacturing and R&D capabilities, BRC will not only manufacture FuelMaker’s products, but will certainly bring them to next level needed for worldwide deployment and acceptance.

In support of a cleaner environment, BRC FuelMaker will continue developing and selling residential and commercial compressed natural gas (CNG) refueling systems and stations - providing infrastructure for all customers that have natural gas on their property.

**Renewable Resources verses EVs and NGVs:**
Renewable energy sources like bio materials and municipal waste are clearly going to play an important role in California’s energy future. These resources are limited and according to the CEC, methane from bio sources can only replace 30% of the energy needs for transportation. Since bio fuels are carbon neutral, their use reduces the State’s carbon footprint. When generating bio fuels, methane is a principle product which is also the primary ingredient in Natural Gas. It can be separated from the gas stream and cleaned to pipeline quality. It can then be compressed into vehicles and used for transportation.

There are many non methane hydrocarbons in the separated gases. These fuels can easily be used to fuel electricity generation equipment and applied to the grid.

Although bio materials can be broken down and re-combined to form any number of fuels from diesel to gasoline to ethanol, it is most efficient in its simplest forms. Therefore, methane and other simple fuels are ideal for optimizing the use of these limited resources. The more efficiently we utilize these renewable resources, the more easily we can meet our GHG and energy independence goals.

It is the consequence of using bio materials efficiently, while meeting transportation needs that establish the relationship between Electric and Natural Gas Vehicles. In both cases the backbone of distribution infrastructure exists, however, dispensing and infrastructure upgrades are required.

**Standards for Electrical Infrastructure:**
Without explicitly stating it, the White Paper makes references to behaviors requiring electrical grid technology that is not currently deployed on the California electrical grid. For example, V2G technologies require bi-directional power and load balancing of wind power requires information and power directional exchange.
Although in many cases technology exists to implement these functionalities, the standards required for coordinated implementation in industry are immature. Interfaces, exchange parameters, safety, and even transmission standards require significant work.

An appropriate addition to this White Paper is information on the status and expectations for Smart Grid Standards to be established.

Conclusions:
This White Paper makes an excellent case to support Electric Vehicles and clearly shows considerations regarding implementing them. It is IMPCO’s contention that Natural Gas Vehicles are as necessary to the future of transportation in California as Electric Vehicles. Furthermore, it seems that the Natural Gas utilities will have as much to offer as electrical utilities with respect to GHG reduction strategies while meeting the transportation needs of California.

It therefore seems prudent to include as much of a detailed an analysis of Natural Gas and Bio Methane, as is detailed on Electrification with respect to vehicles. Alternatively, a second White Paper detailing the Potential Barriers and Opportunities of Light-Duty Natural Gas and Bio Methane Vehicles in California.

Thank you for taking the time to review IMPCO’s thoughts on the CPUC White Paper on Light-Duty Vehicle Electrification in California: Potential Barriers and Opportunities. We appreciate the chance to offer our comments and look forward to the future of alternative energy in California.

Please feel free to contact me with any questions, concerns or comments as I am at your disposal.

Kind regards,

Timothy Standke
Director of Automotive Operations
IMPCO Technologies, Inc.