



Administrator Lisa Jackson  
U.S. Environmental Protection Agency  
Ariel Rios Building  
1200 Pennsylvania Avenue, N.W.  
Washington, DC 20460  
USA

10th September 2009

Dear Ms. Jackson,

The imminent widespread introduction of hybrid electric vehicles (HEVs) has sparked a vigorous debate regarding measurement methods for characterizing vehicle fuel efficiency.

GM's claim last month, for example, that the fuel efficiency of its soon-to-be-released Chevrolet Volt will be 230 mpg, has triggered considerable discussion. Nissan followed almost immediately with an announcement that its Leaf sedan would achieve 367 mpg.

Published reports suggest that both companies purport to base their calculations on a tentative EPA Plug-in Electric Vehicle (PHEV) Fuel Economy methodology. It is difficult to see how a consumer might relate the GM and Nissan numbers in any meaningful way to actual vehicle performance. The Leaf, for instance, is an all-electric vehicle – i.e., it consumes zero fuel. Thus, measuring its performance by means of a miles-per-gallon metric requires a total reconsideration of what the term "mpg" means.

The emerging rapid acceptance of the new breed of HEVs and PHEVs necessitates a new set of measures. Claims made by manufacturers, in the absence of a well-articulated, rational and consumer-sensitive set of regulations, can be confusing at best and, under some circumstances, misleading.

ETV Motors Ltd., a developer of powertrain technologies for hybrid electric vehicles (HEVs and PHEVs), believes this is the time for regulatory bodies such as the EPA to take a firm stand on this issue. The industry, guided by the EPA, should be held accountable for providing meaningful and usable metrics that allow concerned consumers to make informed decisions in a timely manner.

We are writing to you today to call unequivocally for a timely implementation of a new and different approach to measuring vehicle efficiency.

**ETV Motors Ltd**      **אי.טי.וי. מוטורס בע"מ**  
3 Abba Eban Boulevard Herzliya 46120 Israel      בית מטריקס, שד' אבא אבן 3 הרצליה 46120  
Mail: PO Box 12335 Herzliya 46733 Israel      ת.ד. 12355 הרצליה 46733  
Phone +972 9 951 7277  
[www.etvmotors.com](http://www.etvmotors.com)

We suggest here three quantitative measures that will provide practical, usable and meaningful guidance to vehicle purchasers who wish to make environmentally sound, and economically smart, buying decisions.

### **1. All Electric Range**

This number will represent the distance a vehicle driven under normal driving conditions can expect to achieve when operating in purely-electric mode. This measure will be represented in familiar units of miles or kilometers. The All Electric Range will enable meaningful market segmentation in an era when similar vehicles with different-size battery sizes will be offered.

### **2. Energy Efficiency in All Electric Mode**

This number will represent the energy efficiency of a vehicle in its All Electric Range, presented in terms of miles per 10kWh, or kilometers per 10kWh.

The rationale for this measure is that it represents electrical efficiency in a format similar to traditional mpg. We propose the denominator be 10kWh since most electric vehicles will have batteries of this size, or larger. The measure will be in double digits and will facilitate convenient comparison of the electrical efficiency of various electric vehicles.

### **3. Fuel Efficiency in Charge-Sustain Mode**

This number, intended to apply to HEVs, PHEVs and the emerging class of Extended-Range Electric Vehicles (EREVs) like GM's Chevrolet Volt, resembles the traditional mpg metric and will be presented in the same units. It expresses a quantitative measure of fuel efficiency after the vehicle exceeds its All Electric Range.

In this mode, the vehicle's on-board, internal combustion engine consumes fossil fuel to charge the battery and/or power the vehicle while maintaining the battery at a roughly-constant state of charge.

We are also suggesting that EPA issues a formal recommendation to consumers regarding daily maintenance of OVC-capable vehicles. (OVC refers to Off-Vehicle-Charge.) The EPA statement should state: "*Charging your battery saves fuel and money. A single full charge displaces XXX gallons/liters of gasoline. EPA recommends you charge your battery whenever applicable.*"

The three quantitative measures we propose can easily be established within existing EPA methodologies. They can take account of urban and intercity drive cycles, air conditioning, cold start conditions, and mild and harsh driving styles, all of which will be appropriately weighted within the measure.

Adopting this approach means that a vehicle will be comprehensively and helpfully characterized by a simple set of three numbers that will accurately reflect actual vehicle fuel efficiency.

We offer two examples to illustrate how these metrics will work. The numbers below are for illustrative purposes only. No claim is made that they are accurate.

1. An Extended Range Electric Vehicle, such as the GM Volt, which can use both electric energy and traditional fuel, might be presented by these measures:

All Electric Range: ..... **40** miles  
Energy Efficiency in All Electric Mode: ..... **30** mp10kWh  
Fuel Efficiency in Charge-Sustain Mode: ..... **52** mpg

2. An all-electric vehicle like the Nissan Leaf could be presented by:

All Electric Range: ..... **80** miles  
Energy Efficiency in All Electric Mode: ..... **45** mp10kWh  
Fuel Efficiency in Charge Sustain Mode: ..... **N/A**  
[Reason: *The Leaf does not have a Charge-Sustain Mode*]

We recognize that that these measures do not cover all options. For instance, they do not deal with a blended charge-depletion mode. For simplicity, we feel an all-electric charge-depletion mode will suffice for comparison purposes. Nor does our proposal deal with the detailed regulations that will need to be developed in order to give effect to this proposed scheme. But these are marginal considerations.

**The automotive industry and its many consumers need clear and unbiased rules that people of reasonable intelligence to make a meaningful comparison from the options available in the market.**

The economy, the environment, the industry and the needs of citizens in the United States and beyond all need something much better than what is being communicated by the automotive industry today. **The need is urgent and requires immediate resolution.**

We respectfully request your urgent consideration of our suggestion.

Sincerely,

Dror Ben-David  
Chief Executive  
ETV Motors Ltd  
[www.etvmotors.com](http://www.etvmotors.com)