

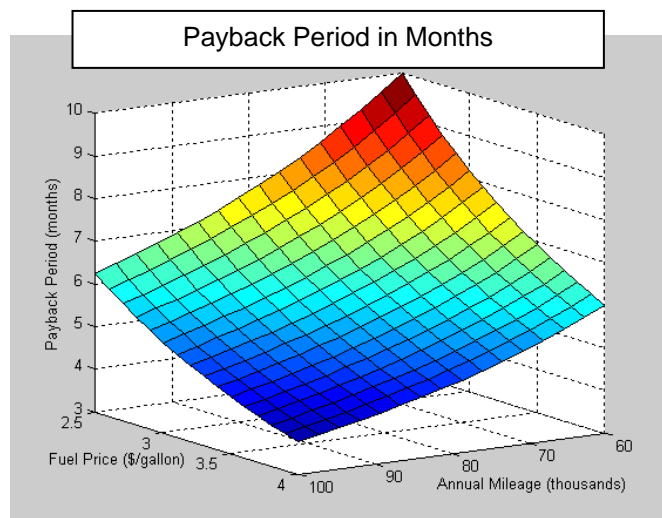
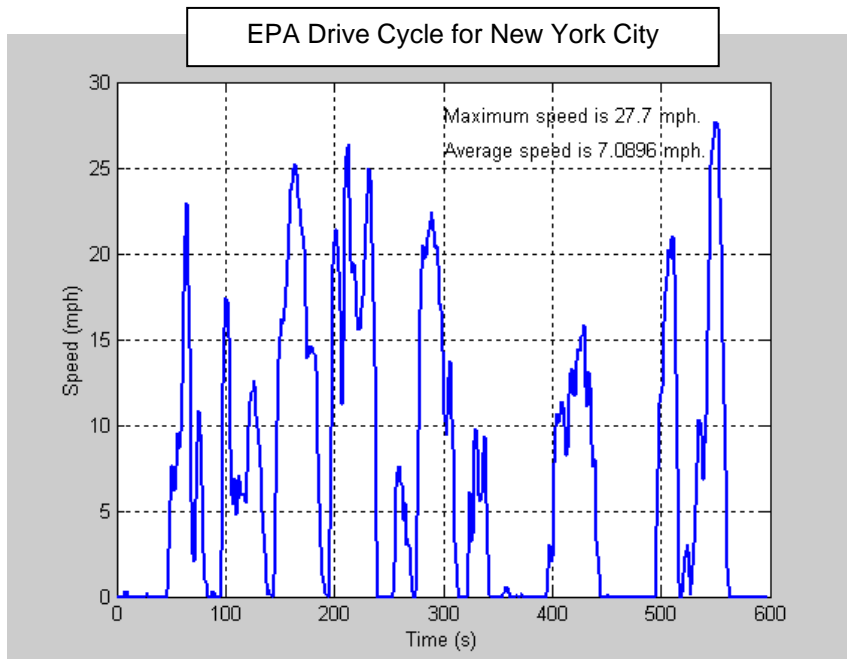
## ***AEC announces a starter/alternator system offering immediate fuel savings and reduced emissions***

### **Advanced Energy Conversion's Stop & Save System™**

Advanced Energy Conversion (AEC) is developing a starter/alternator system to retrofit with virtually any modern truck or car. The Stop & Save System™ will offer the opportunity for drivers to turn their truck or car into a mild-hybrid vehicle and realize the benefits of Start-Stop Technology. In fleets that experience stop and go travel combined with high mileage, the AEC Stop & Save System™ can quickly pay for itself through reduced fuel costs while reducing emissions of greenhouse gases and heat.

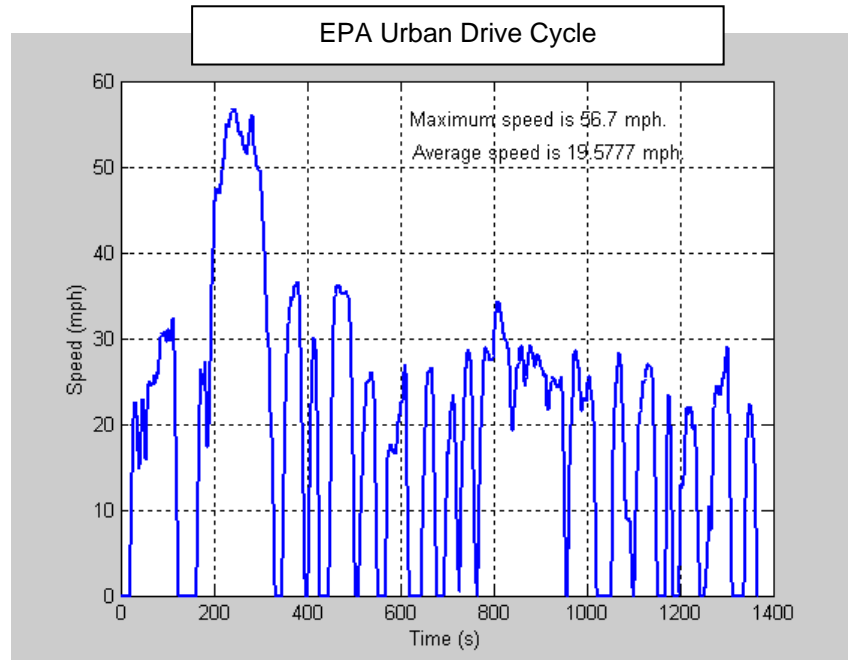
### **Start-Stop Technology**

On today's congested urban and suburban roadways, cars and trucks are spending a greater amount of time idling while stopped in traffic or waiting for traffic lights to change. A vehicle that uses Start-Stop Technology shuts the engine off when the vehicle comes to a stop. An engine that isn't running produces no pollution, uses no fuel and creates no waste heat. As the driver's foot lifts off of the brake pedal, the engine is "restarted" in less than one-third of a second, allowing the vehicle to accelerate as usual when the driver's foot reaches the gas pedal. By EPA estimates, the 13,000 New York City taxicabs spend over 30% of their time in traffic idling. (There are another 37,000 "black cars" governed by the Taxi and Limousine Commission.) Installing the Stop & Save System™ on a taxicab would yield an immediate 20% fuel savings and would pay for itself in just over six months. **A 20% improvement in fuel economy has recently been validated through tests conducted at the Automotive Emissions Laboratory of the New York State Department of Environmental Conservation.**



The payback period for the starter/alternator is shown as a function of annual mileage and fuel price. This payback is based on a projected installed cost of \$2500 for the **Stop & Save System™** (for volume fleet conversions once engineering development is completed), with the system reducing annual fuel consumption by 20%. For a taxi that goes 60,000 miles a year with a fuel economy of 10 miles per gallon, the payback is just over six months with gasoline at \$4.00 per gallon. Payback will be shorter for trucks and buses because of their lower fuel economy. Payback is also reduced with higher fuel price.

The graph at right charts the drive cycle for vehicles in all urban areas nationally. It shows that for each hour of urban driving, the vehicle is stopped almost eleven minutes. As expected, the percent of time spent at full stop is lower nationally (18%) than it is in New York City (30%). **However, it is important to note that the national percentage is still high enough to deliver a double-digit savings in fuel and that confirms the national potential of the Stop & Save System™.**



### How Does It Work?

Easily interfacing directly with the vehicle's existing engine control module (ECM), the AEC Stop & Save System™ replaces the factory-installed alternator. When the engine is running, the Stop & Save System™ generates electricity much more efficiently than factory-installed alternator technology. When the engine needs to be started, the Stop & Save System™ acts like a motor, starting the engine through the serpentine belt. Once the engine is started and running, the control electronics switch back to generator operation.

The AEC Stop & Save System™ concept is compatible with engines that run on gasoline, compressed natural gas, and diesel.

### Stop & Save System™ Advantages

- Easy installation
- Energy-saving advanced generator design
- Immediate reduction in fuel costs
- Reduced noise pollution
- Designed and built in the USA
- Fast payback in many applications
- Patent-pending control and generator
- Immediate reductions in tailpipe emissions
- Reduced heat pollution



## **Applications for the Stop & Save System™**

The Stop & Save System™ saves fuel and reduces emissions by shutting the engine off while the vehicle is idling. It follows that the economic benefits of the system are greatest for vehicles that drive a lot of miles on congested streets. There are also applications where there is an important reason for shutting off the engine when the vehicle is stopped. For example, there are increasing concerns about the emissions of school buses as children are getting on and off of the bus. Shutting the engine off while the engine is off would solve this problem. Advanced Energy Conversion has identified the following applications for the Stop & Save System™:

- Taxi Cabs
- Delivery Vehicles
- School Buses
- Traffic Control Vehicles
- Urban Transit Buses
- Limousines
- Emergency Vehicles
- Municipal Vehicles

## **Commercialization of the Stop & Save System™**

The Stop & Save System™ is an outgrowth of technology that Advanced Energy Conversion was developing for a Tier 1 automotive supplier. Advanced Energy Conversion has engineered solutions to a number of important issues in earlier systems and is focused on making the Stop & Save System™ a commercial success. We believe successful commercialization will involve:

- Finishing the engineering design work for a demonstration system.
- Experimentally demonstrating the operation of the Stop & Save System™.
- Building a number of Stop & Save System™ units for field demonstrations in fleets.
- Incorporating feedback from the field demonstrations into the design of the Stop & Save System™.
- Developing a distribution network for the Stop & Save System™.
- Developing and implementing manufacturing plans for the Stop & Save System™.

Advanced Energy Conversion is interested in developing collaborations to bring the Stop & Save System™ to market.

## **About Advanced Energy Conversion, LLC**

Advanced Energy Conversion is an engineering company with expertise in developing systems solutions using power electronics, embedded controls and mechatronics. AEC grew out of the electric power engineering program at Rensselaer Polytechnic Institute, Troy, NY. AEC has substantial experience in the transportation, distributed generation, and military markets in addition to our work in other industries. The focus at AEC is to find solutions to market-based problems that enable improving energy efficiency, reducing emissions, and increasing functionality in rapidly expanding markets.

Contact David Torrey at AEC for additional information about the Stop & Save System™, at 518-289-8020, x11 or davidtorrey@AdvancedEnergyConversion.com.



New York Governor  
George E. Pataki and  
NYSERDA President  
Peter R. Smith discuss  
the AEC Stop & Save  
System™ at Advanced  
Energy Conversion.



**Advanced Energy Conversion, LLC**  
Suite 500, 10 Hermes Road  
Malta, NY 12020  
P: 518-289-8020  
F: 518-899-5741  
W: <http://www.AdvancedEnergyConversion.com>

