Toyota Testimony

By Tom Stricker

Director, Technical & Regulatory Affairs

On

"Corporate Average Fuel Economy"

Before the

Senate Committee on Commerce, Science, and Transportation

March 6, 2007

Good morning Mr. Chairman and Members of the Committee. My name is Tom Stricker. I am Director of Technical and Regulatory Affairs for Toyota, and I appreciate the invitation to share Toyota's views on the Corporate Average Fuel Economy program.

We believe that in order to reduce America's reliance on petroleum and reduce CO2 emissions, we must develop a coordinated national strategy that addresses the challenge at every opportunity, including all oil-consuming sectors of the economy, consumers, the fuels themselves, and of course, improved vehicle fuel efficiency.

While we should not understate the importance of a multi-faceted approach, I will focus my remarks today on vehicle efficiency and the CAFE program.

From a vehicle perspective, there is no single fuel or technology that can, by itself, solve these challenges. Simply put, there's no silver bullet. This is why Toyota is pursuing multiple technology paths, including advanced gasoline and diesel engines, hydrogen fuel cells, and ethanol-capable vehicles. Underpinning all of this, our hybrid-electric powertrain has become a core technology for Toyota, and we are actively researching plug-in hybrids.

As of January 2007 we have sold over 866,000 hybrids globally, including 472,000 in the US, where we offer six hybrid models covering a wide range of vehicle types and buyers. In spite of these numbers, hybrids still represent only about 2% of US new vehicle sales.

Some have characterized hybrid technology as an interim approach - a bridge to fuel cells. In our view, this underestimates the value of the hybrid system. The fuel cell vehicles we are testing in the United States are themselves hybrids and, in fact, use many of the same components found in our current hybrid vehicles. We view hybrids as an integral approach to our vehicle strategy for the long-term and we intend to incorporate it across our product line when and where it makes sense to do so.

While CAFE may not be a perfect system, it appears it will remain a key part of the solution to improving fuel economy for the foreseeable future. To that end, Toyota supports increasing both car and truck CAFE standards, in a way that balances our need to reduce oil consumption with the practical realities of technology development, product cycles, consumer behavior and a level competitive playing field. We believe NHTSA is best suited to evaluate these issues and determine future CAFE standards.

The recent reform by NHTSA of the light-truck CAFE standards is a good example of changes that can be made within the CAFE program to enhance its effectiveness and address some of the key criticisms of the past.

By moving to an attribute-based system, where each manufacturer has its own CAFE target based on the vehicles it sells, concerns about the competitive impacts of CAFE for trucks have been eliminated. Further, no longer can downsizing, which many claim may have negative safety consequences, be used

as a compliance tool. The net result is that improving CAFE will require application of technology across every type of vehicle. While Toyota remains comfortable operating in either the old CAFE system or the new reformed system, we support Congress giving NHTSA the authority to consider attribute-based CAFE reform for cars. It is not clear sitting here today what would be the appropriate attribute for cars, but NHTSA should to be given authority to examine a range of options.

We think there is even more that Congress can do to improve the CAFE program:

First, as standards are increased, one way to help industry meet higher standards is to increase compliance flexibility. The Administration has requested authority for credit a trading system among auto manufacturers. We believe the likelihood of manufacturers trading among each other is much lower than a manufacturer trading within its own regulated fleets – that is, between its own car and truck fleets, and between its own import and domestic car fleets. Although not included in the Administration's request, trading within a manufacturer's fleets would likely prove more useful, and we would encourage you to consider both of these options as you move forward. CAFE is by definition an averaging program – some vehicles are above the standard while others are below, but the overall target must still be met. This same thinking should apply not just across vehicle models, but also across regulated fleets. It is less important whether energy savings and emissions reductions are achieved in one fleet or the other, so long as overall reductions are achieved.

The second area where Congress can help is through incentives for early compliance. To this end, Congress should continue to reject any form of CAFE standards that would discourage early compliance. One example that would have such perverse impacts is a requiring a uniform percentage increase in manufacturer's CAFE. UPI – as its known - clearly penalizes early compliance by locking manufacturers with higher CAFE into higher standards. This has the practical result of precluding them from competing in certain market segments, even if their products in those segments are more fuel efficient. The National Academy of Sciences has repeatedly rejected UPI as a counterproductive approach to fuel savings.

Another way Congress can incentivize early compliance is to extend the life of earned CAFE credits from the current 3-years to something longer, perhaps 5-years. Again, this would not only reward early compliance but would provide another tool for manufacturers to cope with CAFE increases.

The final area involves the consumer. Actions to stimulate consumer demand for more efficient vehicles are a key part of any comprehensive approach to reducing petroleum use and CO2. In addition, consumer purchasing decisions directly impact a manufacturer's compliance with CAFE standards.

Toyota was pleased that Congress recognized the need to bring consumers into the equation by passing the consumer tax credits contained in EPAct 2005. Indeed, these credits helped to move and strengthen the market for hybrid vehicles. As you know, the amount of the credit available to consumers begins

phasing-out once a manufacturer sells 60,000 eligible vehicles. We urge Congress to lift the cap on vehicles eligible for the credit in order to stimulate greater demand and bring the cost of new technology down.

While we urge Congress to consider these potential legislative enhancements to the CAFE program, we continue to believe that NHTSA is best equipped to weigh the various trade-offs inherent in setting the level of future CAFE standards, such as manufacturers' confidential product plans, product design cycles, technology cost, technology availability, and other factors. In our view, the real challenge in targeting future fuel economy potential is the pace at which technology can be developed, its cost, fuel prices, consumer preferences, and perhaps most importantly – the extent to which available technology can be added in the context of product cycles.

When we design a vehicle, we have to predict what our customers will want some 4-6 years into the future in order to complete development, testing and re-testing, production preparation, supplier development, government certification, and ultimately, production. Once we commit to a technology strategy for a given model, it is generally a 4 to 6 year commitment. Unfortunately, this means we cannot add technology to every vehicle every year, even if technology is "on-the-shelf".

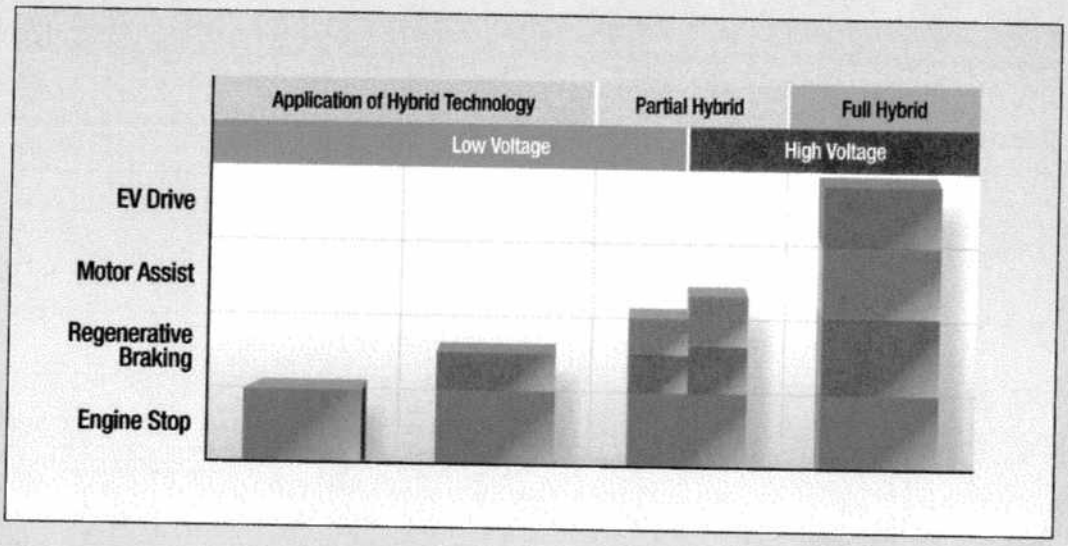
To put this into perspective, the 2.2% annual truck increase promulgated by NHTSA for seven consecutive model years – if continued into the future – would require about an 11% fuel economy improvement in every model, every time it was redesigned. This is a significant challenge given the often competing

demands by consumers. By the same token, a 4% annual increase would require about a 20% improvement in every model, every time as a result of 4-6 year product cycles.

Targeting future fuel economy improvements hinges on many factors that require detailed analyses that NHTSA is best suited to evaluate.

In closing, Toyota has a strong track record of bringing advanced fuel economy technology to market and achieving leading levels of fuel economy. We've always exceeded CAFE standards – in fact, over their lifetime, the past ten model years of Toyota vehicles sold in the US will consume 11 billion fewer gallons of gasoline (or nearly 265 million fewer barrels of oil) than what the law would have allowed. These same vehicles will emit over 100 million metric tons less CO2 than if we had simply met the CAFE standards. Our core philosophy of "continuous improvement" will drive us to pursue additional technology advances in the years to come. Thank you once again, and I'd be happy to answer any questions.

Types of Hybrids



TODAY for TOMORROW

TOYOTA

Toyota & Lexus Hybrid Offerings

Toyota

Prius – Midsize 5 Door

Camry Hybrid – Midsize 5 Door

Highlander Hybrid – Midsize SUV

Lexus

RX400h – Luxury SUV

GS450h – Premium Sport Sedan

LS600h – Flagship (Available Spring 2007)

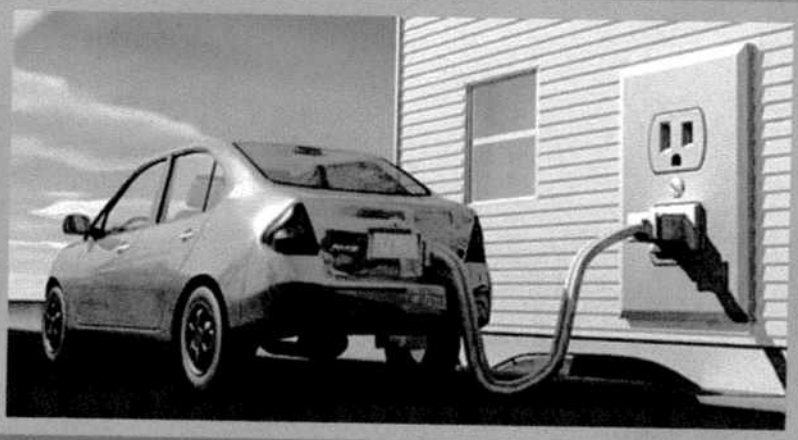
TODAY for TOMORROW

TOYOTA

Plug-in Hybrid Vehicle Concept

Battery can be recharged from external source to extend the electric motor-enabled EV (electric vehicle) driving range

- Short EV drive trips are possible using electric power of recharged battery alone
- Engine and electric motor used for long distances, high speed and hill climbing

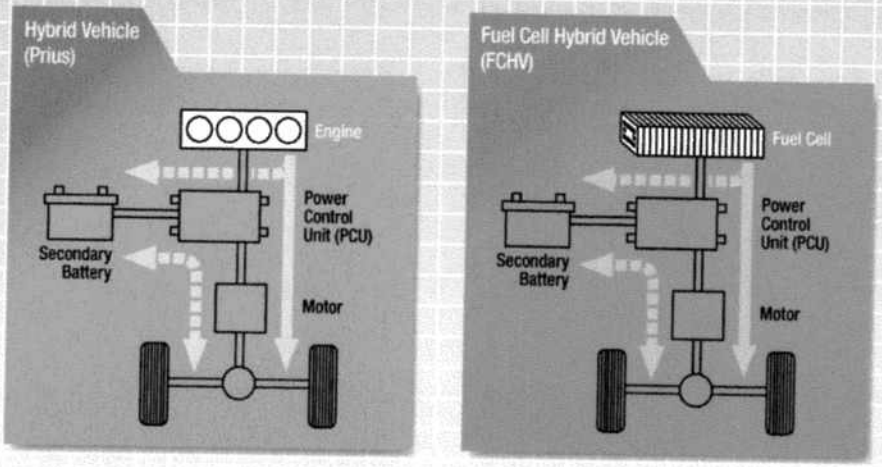


Plug-in hybrids represent a promising approach to using electricity in everyday vehicles

TODAY for TOMORROW

TOYOTA

Toyota's Fuel Cell Technology



"Revolution Through Evolution"

Hybrid technology is not temporary – virtually all hybrid-related components transfer over to our FCHV

FC Vehicle Commercialization Challenges

Issues

Category	Issue	Division of responsibility
Technical	Durability, Low /High temp. performance , Design for Compact&High efficiency, Hydrogen embrittlement	**Auto industry**
Product	Cost (vehicle cost), cruising range (hydrogen storage)	
Environment	Recyclability, life cycle assessment (LCA)	
Safety	Hydrogen, high voltage, collision performance (specifications & standards)	
Infrastructure	Hydrogen production/transport/storage, infrastructure building, hydrogen cost	**Government, Energy industry**