Why Give up Power for Fuel Economy?

Ford's Strategy is to Give Us Both!

by John M. Clor

Ford performance enthusiasts have been given a number of "sneak peeks" of late—the most noteworthy, of course, being the 2010 Mustang. But there've been lots of other interesting product unveilings this year—from the factory-built FR500S road-race Mustang to the top-secret SVT Raptor truck project to Ford Racing's new Mustang Cobra Jet drag car. Despite our bleak economic times, it's all pretty exciting stuff.

As a longtime member of the motoring press, I've been treated to lots of cool "insider" information over the years. But one of the best things about working for Ford is being able to see future products before they are revealed to the media or the general public. Although company employees hadn't been given these internal "product immersion" opportunities as often as you might think, the current management team works hard to keep employees informed about our products. Recently, I was able to attend a "Drive One—Fuel Economy and Product Experience" for employees. While cell phones and cameras were not allowed and I certainly must comply with the confidentiality agreement that I signed if I want to keep my job—I do want to share with you some very good Ford product information as it relates to fuel economy and performance.

I'll admit that my days working with Ford SVT have forever biased me toward performance vehicles, and my current job with Ford Racing managing www.FordPerformance.com shows that I haven't strayed very far from my hot-rod roots. But just because I love all Mustangs and any Ford V-8 doesn't mean that I'm not interested in fuel economy, or other, more mainstream Ford cars and trucks.

The fact is, like many of you I have several kinds of Fords in my driveway that I own for different reasons. In those cases, other strong vehicle attributes such as functionality, quality, safety and fuel economy had outweighed my penchant for performance. That's not to say that I don't wish all of them could be sporty AND fuel-efficient, because to me – that would be the best of both worlds!

That's likely why I was so taken aback by an automotive column I had read recently entitled, "Car Owners Want Fuel Economy over Power." It was yet another tongue-in-cheek Detroit-bashing "opinion piece" penned by a veteran auto writer—one who is actually old enough to know better. It started by calling on the auto industry to stop the "horsepower war and instead focus on a new fuel mileage war." It went on to bemoan auto executives and engineers who for decades "couldn't stomach the thought of keeping a vehicle's horsepower the same—or worse, lowering it a bit in a new model."

Funny, but I had long thought that giving consumers what they want was a good thing! And if consumers wanted to buy high-profit trucks and roomy SUVs and high-performance, high-horsepower Mustangs, and Ford had obliged by building the same and adding profit to the shareholders' bottom line—then how come auto writers, TV commentators and politicians now say that "Detroit needs to learn how to build vehicles that people want?" Hmmm. What was everybody buying when all of this was going on?

That column went on to say that, "a.) most consumers don't understand horsepower and torque; b.) many travel daily on roads so congested they get few opportunities to use the power their cars have; and c.) fully half the vehicles today are sold to women, who, generally speaking, tend to rate other things like cost, reliability, styling and safety ahead of engine power when they car shop." Wow, I've been an auto journalist for 20 years, and I know that even non-enthusiast consumers understand what good acceleration is—even if they call it "good pick-up." I also know that people who buy horsepower are like people who buy guns—they don't want to use it everywhere—they just want to have it when they need it. And my wife, Jenny, told me that she doesn't like statements about women that include a conditional like "generally speaking"—they are generally wrong. And though she DOES consider cost, reliability, styling, and safety when buying a car, she DOESN'T rate them ahead of power. As a Mustang owner, she likes power!

Finally, the columnist (a woman) wrote that call for more power "is so yesterday." She said, "... the fact is many consumers already are forsaking power for fuel economy." And then concluded with the statement: "Car company executives have long pointed to surveys that say Americans don't want to compromise. They want both power and fuel economy. What would you expect them to say? I hope car company executives recognize they can retire the old paradigm. The fact is fuel mileage numbers now are more treasured than horsepower numbers for everyday Americans."

Well, I consider myself as an everyday American and don't care much for journalists who assume they're speaking for me. In fact, I DO treasure horsepower numbers—so much so that I buy Ford Racing parts to get even more power from my V-8 Mustang. I just wish it could also give me better fuel economy too, so that I could save money on gas. That means the surveys that say most of us would rather NOT compromise are TRUE! Too bad this journalist hasn't been paying attention to Ford's announcements about the launch of its upcoming EcoBoost engine technology. I must tell you that after attending the internal "Product Experience and Fuel Economy" seminar, I'm more excited than ever before that Ford has truly found an affordable, no-compromise powertrain strategy when it comes to giving Ford fuel economy leadership in the very near future.

Ford had discovered from the last big fuel crunch in the early 1970s that simply replacing V-8s with more economical four-cylinder engines across the board isn't the answer—especially with Mustang, whose brand has been synonymous with affordable, fun-to-drive performance. So, in order to balance the need for higher fuel economy and lower emissions without sacrificing that much-loved performance, Ford found a smart, simple way to reach all three of those goals simultaneously with its EcoBoost system.

Officially launched at Detroit's 2008 North American International Auto Show, Ford's EcoBoost powertrain technology strategy is to offer smaller-displacement gasoline engines that employ direct fuel injection coupled with turbocharging to provide good fuel economy while maintaining V-8-like performance. The idea was first revealed last year with the unveiling of the 2007 Lincoln MKR Concept. Dubbed "Twin-Force" at the time, that aggressive-sounding nomenclature has now taken a back seat to the more green-friendly "EcoBoost" name.

Yes, Ford has taken more than a few trips down the factory turbocharging road before, beginning with the old 2.3-liter four in the 1979 Mustang Indy 500 Pace Car, and later with the Fox-Body Cobra and SVO Mustangs. But with this new powertrain system, highly pressurized fuel is injected directly into the combustion chamber of

each cylinder, rather than via the traditional process of mixing it with the incoming air in the intake port and sending it into the cylinder via a manifold. EcoBoost direct injection offers a more precise delivery of fuel, providing not only lower emissions but better fuel economy from the higher compression used in this more-efficient combustion process. When this is combined with EcoBoost's twin, low-inertia small turbos, the typical hesitation (or turbo "lag") is minimized and the all-important torque curve is made both fatter and flatter.

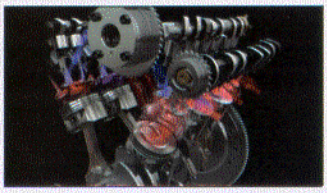
The current plan is to produce half-a-million Ford, Lincoln and Mercury vehicles annually in North America over the next five years with new EcoBoost four- and six-cylinder engines. Compared to the much more expensive and complex hybrid and diesel powertrains, EcoBoost gasoline engines give more customers an affordable way to improve fuel economy and lower vehicle emissions without compromising the driving, towing or hauling performance associated with higher-displacement engines.

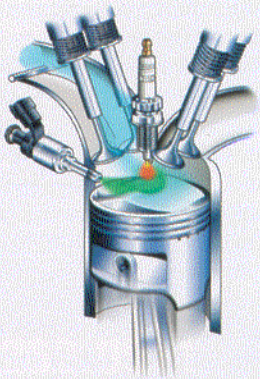
EcoBoost is due to arrive as an option in the 2009 Lincoln MKS, featuring a 3.5-liter twin-turbocharged V-6. It will make an estimated 340 horsepower and 350 lb-ft of torque (instead of the stock 3.5's 265 hp). Not only will EcoBoost give an MKS the power and torque of a V-8 with the fuel efficiency (and 150-pound weight savings) of a V-6, it will position the MKS as the most powerful and fuel-efficient all-wheel-drive luxury sedan in the market. Later, we will find EcoBoost technology in the new Ford Flex as well as a wide range of other Ford vehicles, from small cars to large trucks.

Not only is EcoBoost expected to offer fuel economy improvements of up to 20 percent, reductions in CO_2 emissions of up to 15 percent and increased overall engine performance, it will also easier on the buyer's wallet. Ford estimates that customers in North America purchasing a vehicle with an EcoBoost four-cylinder engine can expect to recoup their initial investment within two and a half years through savings in fuel costs alone. Compare that to American drivers of diesel-powered vehicles, who need seven and a half years to recoup their investment. Or today's hybrid owners, who need nearly 12 years when all options are equalized for miles driven per year and fuel costs. What's more, the high-tech EcoBoost engines still run on regular-grade, 87-octane gasoline. And their real-world fuel economy benefit is consistently delivered no matter the drive cycle, meaning the engine is as energy efficient in the city as it is on the highway.

Ford has two EcoBoost engines so far, the 3.5-liter V-6 (which uses the same block as the regular 3.5) as well as a 2.0-liter inline four that pumps out 275 hp and 280 lb-ft of torque, or more power than the current standard six-cylinder. Engineers could also develop completely unique EcoBoost engines with reinforced blocks to allow for higher-boost applications and even more horsepower. When combined with Ford's advanced new six-speed automatic transmissions, electric power-assisted steering, plus several material weight reductions and aerodynamic improvements, it's easy to see where the enhanced performance and better fuel economy will come from.

In addition to environmental actions like EcoBoost, Ford is also planning to introduce additional hybrid vehicles, plus diesel engines for light-duty trucks in the near future. Longer term, the company plans to remain aggressive in developing plug-in hybrids, as well as hydrogen fuel cell-powered and more biofuel-capable vehicles. But for right now, Ford sees EcoBoost as a cost-effective formula that will deliver both what consumers really want, and what the tough new mileage regulations require.





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