



## **The Environmental Crisis, The Auto Industry And The Aftermarket**

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(The following may contain unintelligible or misunderstood words due to the recording quality.)

JOHN WORMALD: Thank you, Mark, for that most gracious introduction. I might well be persuaded. And thank you for inviting me back here. And thank you to Dave and Pete, as well. My goodness, last time I was here was four years ago. How time flies. Well, the GAAS today is even better than it was that time then.

Ladies and gentleman, good afternoon. I looked at the title they handed me and thought, my goodness, what have I taken on. But I took courage in recollecting the first speech I was ever asked to deliver to an automotive conference, and then they gave me the subject of, "The World Car and the Aftermarket." Now, how the hell do you make sense of that combination? But evidently I did, because this is 25 years ago. Maybe I made sense then. I hope I still do today.

But after that Fred Kerns of Tenneco Automotive, Europe, came up to me enthusiastically and said, "Wow. You clearly know something about the aftermarket. I need your help," which of course is music in the ears of a consultant who has a family to feed. Anyway I am going to do what it says on the can.

I am going to talk about the three topics that are in the title: first, the environmental crisis, to which I'm going to add the energy situation, which is the flipside of that coin; second, the consequences of this for the automotive industry; and thirdly, the implications for the aftermarket. And, again, I'll try to drive some kind of logic through that lengthy sequence.

Let's start with the first topic, the environment. Well, that's a big enough topic on its own, and it's kept people busy for a very long time. Now, I'm not Al Gore, fortunately or unfortunately. I don't think the guy is perfect. He may have over-stated some things, but I believe he raised some very real issues and that he's broadly on the right track. Now, that may infuriate some of you to start with.

Anyway, here's the cover picture from a piece I published a couple of years ago with the title, "Hot, Thirsty, and Crowded." A well-filled freeway; it looks like it's in California under a baking sun and undoubtedly crowded.

Let's start with global warming and greenhouse gas emissions. The result of all that analysis, modeling, reports, discussions and odgie bodgie [phonetic] that's gone on, is that if we continue on the present upward trend in greenhouse gas emissions, and that's the red line here, we face catastrophe.

Even if we freeze the annual rate of emissions at the present level, that's the yellow line, we face unacceptable temperature increases with all the manifold problems that they will bring. And the desirable policy we are told is to cut them back by no less than 50 percent globally, and get going as soon as possible. And that's the green line going down.

Now, there's an additional little twist to this. And that is if the

developing world is to have its legitimate access to and share of energy resources to support its development, then we in the developed world need to cut back much more than that; perhaps 75 percent. Which if you pause and think about that, it's absolutely breathtaking. Now, I think the developing world would also do well not simply to imitate the way we developed. We went gung-ho into burning fossil fuels, but to find lower carbon routes from the outset.

Now, transport is not by any means the only source of man-made CO<sub>2</sub> emissions, nor has it even been the fastest growing, as this slide shows. The height of the columns is the total mass of CO<sub>2</sub> emitted in 1990 on the left, and 2006 on the right; up 1/3 in that quite short space of time. The energy industry is the blue blocks. Notably electric power generation present the biggest problem. But transport in red is the number two contributor and also growing fast.

So we can't realistically weasel out by suggesting that transport somehow be left out of the picture. This from the same source, The Internal Energy Agency, is a view of where the future reductions need to come from, and basically they're proportional to the starting contributions. So transport, which at the bottom in red, has to affect substantial cuts by 2050 in this scenario in order for everything to come down 50 percent.

Now, the trouble with this, of course, is that if we suppose that the world vehicle park doubles in that time and if we suppose that each vehicle in that park is driven as much as it is today on average, then simply cutting specific emissions from each vehicle by 50 percent will simply bring us back

to the starting point. So, we're back again in some kind of extraordinarily demanding target, like 75 percent.

Now, I don't think it's remotely realistic to expect the fuel efficiency of vehicles to be improved to that extent that they only consume a quarter of the amount of fuel that they do now. And I think we are going to have to attack the demand side of mobility as well, rather than trying to lay the whole responsibility on the supply side. Which I think was the catastrophic mistake made in the CAFE approach. And I'll come back to that issue later.

It's a double whammy because there's that problem of energy supply and security and prices, as well. This old picture is of Tar Creek, Pennsylvania in 1861, two years after Colonel Drake first struck oil around there. Now, that's not that long ago in human history, if you think about it. But this was the discovery that was to make automobiles and aviation possible through the internal combustion engine, and critically, the ready and economical availability of liquid fuels to run them, and of course the petrol chemistry, as well.

And if you go back another hundred years in time or a bit more before that, Newcomen's invention of the steam engine. That was in fact really the machine that changed the world. It was used to drain coal mines initially, which made coal available at low cost, which then powered the steam engine and thereby enabled the steamship, railroad and industries of the first industrial revolution.

But oil is central to the automotive industry and the automotive

industry is central to oil. Here's a 1972 to 2005 historical trend shot for world oil consumption by sector, again from the Internal Energy Agency. Transport, the reddish slice in the middle, dominates oil consumption. Within that, of course, road transport is dominant; i.e., automobiles and trucks, although air travel, both passenger and freight, is taking an increasing share. The transport sectors consumption of oil about doubled over that period, despite gains in the energy efficiency of road vehicles that were achieved.

Now, we are running into some constraints on the availability of conventionally recoverable oil, the stuff that Colonel Drake first got out of the ground by drilling a hole. While new discoveries have continued to be made, the rate of them has not kept up with the pace of production and consumption. This chart shows the trend in the ratio between additions to proved reserves and the level of production decade by decade since the 1960s.

What we have in particular not seen in recent decades and years is the discovery of as many giant new fields, as was the case back then. Oil has to be found in smaller, more dispersed quantities in more and more difficult locations; the latest example being the discoveries over the Brazilian coast 6,000 meters under the sea and under a salt layer. And the resource obviously cannot be infinite, and we are starting to approach some of the limits.

Of course, that doesn't mean we are running out of all forms of oil or hydrocarbons. There are other sources. Now, this chart is a bit complicated, but it's the IEA's view of the sources going forward and of the consumption by sector, and we have pairs of columns for 2005, 2030 and 2050. This is on trend, assuming that nothing has changed in the consumption pattern. And on

the left you have where it came from or where it's going to come from, and on the right which sector consumes it.

In 2005 about 40 percent came from OPEC sources and 60 percent from non-OPEC, which was at least a way of holding OPEC more or less in order. And 55 percent was consumed in transport applications and 45 percent non-transport.

By 2030, demand will have grown from that base by 50 percent, dependence on OPEC will have increased further, and we shall just be starting to have to reach for the non-conventional sources such as arctic and deep-water oil, oil sands, shale oil, biofuels, and synfuels; i.e., liquid fuels made from oil made from gas and coal. By then transport will be 60 percent of consumption. By 2050, we shall have doubled our requirement compared with 2005. We shall be heavily dependant on non-conventionals, and transport will dominate use at 70 percent, which is quite rational because it's, in fact, much easier to switch out of petroleum-based fuels for static applications such as (unintelligible) generation.

But there's a little catch to this, and that's the cost. This is the IEA's view of the long-term oil supply cost curve. The vertical axis is production cost-per-barrel; the horizontal is an estimate of total accessible resource, and start from the bottom left. The first block in green is what we've already used. The next over in red is remaining conventional oil from the Middle East and North Africa which, of course, are not the most stable or reliable places, politically. The third, in pale blue, is remaining conventional oil from other regions. Now, I've stuck a horizontal red line through that, which gives a

production cost that averages around \$20 per barrel.

Run out of conventional oil, and you're into the next blocks, up and to the right. You can get some more out of the existing fields by systematic use of CO2 injection, a recovery technique: deep-water sources, other enhanced recovery, arctic and heavy oil and bitumen. But the average production cost goes up to 50 bucks a barrel. Use those up and you're into the serious stuff, oil shales, gas-to-liquid, coal-to-liquid, and the production cost is now over \$80 a barrel. Plus you get a lot of CO2 throw-off if you indulge in making synfuels. And I haven't talked about the price yet, which, of course, is going to hit us much sooner than that.

The IEA is forecasting a rapid return to a price of \$100 per barrel, if not 200, once the recession lifts and demand again starts to outstrip supply. We've seen unbelievable instability in the oil price, because it's such a fine balance between demand and supply, and that plays havoc with two things. One is investment in production facilities, willingness to invest; and the other, of course, is the auto industry. This is an absolutely hideous scenario if you're trying to plan any product lineup and the technology that underpins it. And the U.S. industry, in particular, has been terribly whip-sawed around by variations in fuel prices.

So what can we do? The word from the IEA is that we can and must double the energy efficiency of light-duty vehicles. They reckon this is accessible without great pain by using existing or easily developed technologies, stuff which is within range, including the extensive use of hybrids. They say the world average consumption rate has to move from over

eight liters-per-hundred kilometers, which is the European formulation of energy efficiency, to four, or halving.

The U.S. is somewhat over eight at the moment, the Europe is under eight. Four is a hell of a tough target already, and I personally think their approach is a bit U.S.-biased relying perhaps too heavily on hybridization. And I have a bit of a European skepticism towards that technology. Unless, of course, you're talking about plug-ins, which are not really hybrids; they're basically electric vehicles, battery electrics with a range extender. And, again, even if you get down to four liters-per-hundred kilometers, if you double the park and the number of vehicle miles traveled, you're exactly back where you started.

Note also, and this didn't occur to me until lately, the absence of mention of heavy duty vehicles, and trucks are significant consumers. They consume 30, 35 percent of the fuel requirements of road transport. And it's actually going to be a lot more difficult to get their consumption down, because they're much closer to perfection already.

But what does all this mean for the auto industry? I've tried, in a very crude fashion, to explore the possible future in a simple way, and this is purely for passenger road transport. I haven't dealt with trucks. Top left corner in this matrix is now the starting point. Emissions and consumptions both indexed at a hundred. The three columns moving over to the right are what I see as three possible stages of progress, which might take five to ten, 10 to 20 and anything up to 50 years. A long road, but we have to start now.

Going down the rows of the levers that we could conceivably pull:

First, the design and technology of vehicles; second, how we start to manage the demand side, how we manage mobility; and the bottom the really difficult one, our habitat; i.e., how we choose to live and work, where we choose to live and work, which is the ultimate determinant of how much transportation we consume.

Now, I do believe, yes, we can get to stage one with the existing or easily available vehicle technologies, although at a cost of quite a lot of downsizing. We can achieve some modest shifts between transport modes in favor of more collective forms of transport, and this is essentially about changing the load-to-vehicle dead-weight ratio, and perhaps with some very modest constraints on mobility.

This will be difficult in the U.S. with its very heavy dependence on autos and its dispersed living style. And the U.S. will largely be relying on changes in vehicle design and technology. There's perhaps a little more room in Europe to address the mobility management issue in this first stage, and probably much more in crowded Asia. And we might get the index down by 20 or 30 points.

Stage two gets really tough because that's where we really need to deploy the new technologies and that's not only new drive-line forms, but it's also new, much lighter body structures. I tend to agree with Amory Lovins that the really powerful lever that we can pull is vehicle dead-weight.

And there are no silver bullets by way of new drive-line technologies. It's already been said this morning that it's not very useful to go to electric drive if you generate the electricity from fossil fuels or if you use synfuels

from fossil resources with a massive CO<sub>2</sub> throw-off that that implies. And bio-fuels are a controversial subject.

A big shift to renewable electric power resources would, of course, do the trick. But how do you do that? Do you go massively nuclear? Can you generate enough wind or wave power? It's very questionable. Or the kind of great white hope that some people have, which is the development of CO<sub>2</sub> capture and sequestration technologies, which you would do centrally at the electric power plant or at the synfuel plant. That would change everything. But that is a totally unproven set of technologies at this stage.

What I think is clear, though, is that transport options and local primary energy options are closely connected, which has some interesting implications for the automotive industry, which may end up being more diverse in its products and technologies than it actually is today.

I think what could help a lot in terms of reducing the dead weight of vehicles, the amount of un-useful mass that one shifts around, is to accept more specialization, especially the deployment of small, commuter vehicles. Today all of us tend to buy the largest vehicle that we can afford and to drive around in it. Tomorrow that may have to be different.

We might actually end up with a bigger park of vehicles than we have today if we accept specialization. But I believe mobility will increasingly be managed and influenced through the use of new transportation packages, and people will be helped to make more intelligent choices. All that gets us down to, maybe, 40 or 50 on the index. Beyond that, we get into a highly hypothetical stage three, in which we actually need to look at how we live at

our habitat. Maybe we need to make choices about living more closely together, living more close to our work, telecommuting, and those things. Maybe we need to find ways of decoupling our insatiable demand for mobility, the growth in that demand from the growth in GDP.

Now, again, that's going to play in different ways in different parts of the world. I think it's more plausible in Bangkok than in Berlin, and it's more plausible in Berlin than in Burbank. Which brings me back to the idea that emerging economies perhaps should not attempt to copy what we have done in the west, in large area countries, in terms of mass motorization. The Chinese communist leadership is going to have an interesting time selling that to its public. And I sometimes think that we may have problems; but I think the Chinese have a much bigger problem.

I've not talked about freight. It was billed as one of the items in the talk. That's another whole can of worms. And one of the problems -- no, problem, it's an achievement -- is that if you look at how trucks they're built and how they're used, they are generally fuel efficient already. They have to be because they're bought by commercial operators for whom the cost of fuel does count. And, secondly, they're deployed efficiently; and thirdly the modal choices, the forms of transport, are already made in a rational way.

This is a statistic that I like to astonish audiences, particularly U.S. audiences with. Which freight transport mode is dominant, is the largest in the United States and shifts the most ton kilometers? Well, it's not actually truck; it's rail. Now, there's a lot of coal drags in that. But actually the U.S. railroad system shifts more ton kilometers than the trucks. And it's logical in a big

area, country and all those kinds of things.

But a lot of the demand growth in freight transport actually originates in globalization: the exchange of goods over greater distances; the more rational division of labor; the leveraging; the deflationary impact of low-cost labor being mobilized in other regions of the world. And it raises some interesting questions about what will happen with that, whether in an environment of much higher energy prices we may not see some reversal of that trend.

What does this mean for products for vehicles? And I've picked some characteristics of cars and light trucks, which I've put in the left-hand column here, and tried to contrast our past attitude towards them in the middle column with what, I think, might need to happen in the future, which I've put in the right-hand column.

Size. Historically, as I've said, we've tended to buy the biggest car we can afford. No more. I think we shall be driven to buy the smallest car. The lightest car that suits our particular purpose, even it means having a small one and a big one for longer trips.

Weight. Weight has grown steadily over the years, and you can track it for particular models. It's one of the things that is reversed since it was forced down by the original CAFE requirements at the beginning of the '80s. And it's grown for both market reasons: additional feature and comfort; and regulatory reasons, which largely have to do with safety. And that trend will have to reverse and pretty sharply, and that's going to be difficult.

An ally to that is safety. That's been alluded to already. We have

protected ourselves and pretty successfully. It's been a great achievement of the industry through passive safety; i.e., mitigating the consequences of a crash for the occupants of a vehicle, which has cost in added weights. You add more strength in the structure, more crumple zones, more air bags, you name it.

We need to move towards an approach in which we try to avoid impacts or reduce their severity, and that's going to be a big challenge and it's going to involve vehicle design, technology and materials. It's going to involve the highway infrastructure. It's going to involve telematics, how vehicles can interact with each other, and with the infrastructure. And, obviously, it's going to involve a continued effort on driver behavior.

Performance. We've always loved power, but we may have to change our mindset or perhaps more accurately our emotion set in favor of economy. Which, last, but not least, has big implications for the roles of vehicles: moving from status symbols or means of self expression to perhaps a more utilitarian view of mobility.

Now, that's a colossal culture change for the automotive industry, or will be. By the way, though, it does not mean that we have totally to abandon product diversity, or above all, good design because if the appeal of vehicles is going to have to be re-based, then good design is going to be an extremely important aspect of that.

The automotive industry likes to think of itself as hugely innovative. In fact, it's been a very prudent innovator and for very evident reasons of cost. This is a very cost-driven mass production industry: reliability, quality and, quite simply, drivability by ordinary citizens.

The data for this slide comes from an annual sector R&D assessment that Booz & Company publish in their journal, Strategy + Business. The vertical axis is the growth rate of R&D spent by sector, and the horizontal is R&D spent as a percentage of sales. So this is across macro-sectors.

Circle size is proportionate to annual R&D spend. And I've picked out the three big spenders, which are health care in green, computing and electronics in blue, and automotive in red. The automotive industry, in fact, spends less in absolute terms than the first two and much less relative to sales than does health care. And what you don't see in this is the qualitative difference. Health care does lots of fundamental research. They look at fundamental, biological, biochemical mechanisms. They look at specific actions on receptor sites and all that kind of stuff to develop really pinpointed molecules, new chemical entities that deal with very specific therapeutic issues.

The automotive industry -- and you will never find published statistics on this -- I think, from the best estimates I've heard, spends 80 to 90 percent, basically on repackaging the existing technologies, which, again, is perfectly understandable in the way that it's operated. But if it's really going to face up to the environmental and fuel economy challenges of the 21<sup>st</sup> century, I reckon that spend needs to double with most of the emphasis of the addition on real research and real innovation.

Now, if you're talking about taking another three or four percent off the bottom line, that's going to be painful in an industry that has difficulty earning anything very much net of tax, which leads to another question: Why is this

industry, other than certain up-line specialties, Porsches and others, so chronically unprofitable?

I don't think the reasons are that hard to find. Now, what we're always told about is over-capacity. But I have doubts about that. Have you ever seen a line in an assembly plant that wasn't producing, manned with people? Have you ever heard of a supplier being paid for products that they didn't deliver? I haven't.

I think the reasons are much more in the product proliferation process, badly done. Here's the annual number of new product introduction split by manufacturers -- which you don't have to bother about -- in Europe, and that runs from 2000 to 2005. I just happened to find a convenient time series. And look how it's increased: more and more and more. The repackaging machine has gone out of control. Everyone seems to think that throwing more product at the market will somehow make it grow; that it's the wonder weapon which will allow each of them and all of them to win. All it does, of course, is to push up the overheads, push them through the roof. And if you prematurely obsolete your perfectly good existing products, you know what that does to your residual values and therefore indirectly on your new car price realization.

Yes, there's been rationalization in the industry. The bottom trend line, the blue one, is the number of vehicle groups that have been around. There has been some consolidation and there has been some de-consolidation, Daimler-Chrysler being the notable example. And we've seen some new entrance in Asia. But maybe we're going to see a re-consolidation with Fiat and Chrysler and Opel. But, again, what dominates is that upper red trend line heading up

into the stratosphere, the proliferation of products. And I occasionally ask myself: Why do the guys do this? Is it collective delusion? Mass hysteria? The Lemming Instinct or what?

And I have come to the conclusion that it's because they've misread Alfred P. Sloan. They all believe that they have to offer a cradle-to-grave full-line offering; which brand exclusive franchise dealers are then used to force into the market, because the dealer doesn't get to pick and chose which products they sell. They can't just sell the fast moving ones, the attractive ones. They have to move everything.

All of the vehicle manufacturers, all the volume manufacturers, are essentially following the same strategy with no real differentiation. And that actually is simply a recipe for a price war. It's a kind of multi-sided trench warfare about as productive as World War I.

Now, one of the sad things about this is that everybody else seems to know about it. This is the cover picture from a very serious and sober report put out by Deutsche Bank on the automotive industry a few years ago, well before the current recession. And here are our friends, Laurel and Hardy, disassembling an automobile in a garage somewhere. And the comment was one of the analyses showed how much the industry had simply lost in significance in terms of capital market valuation compared to all other sectors.

The other very bad habit is that of transferring the pain to ones partners. Automotive News has some wonderful cartoons, and this is one of my favorites: an automaker beating up a supplier in some salubrious, back alley in Detroit with the threat of Chinese prices.

But the real tragedy to my mind is that that suppliers briefcase lying on the ground contains the plans for the technologies that the industry critically needs today and increasingly will need in order to solve, to address the environmental and economy problems. This is suicidal behavior and it still goes on.

And here's another actor in the equation. Here's Uncle Sam. He's not saying, "I want you for the U.S. Army." He says, "I want you to give me a credible turnaround plan." But he's also been part of the problem. Who used CAFE to stick the responsibility for fuel economy on the supply side; i.e., the industry because it was politically unpalatable to manage the demand side through fuel prices and taxation? Who put an 11 percent tariff on imported cars, but 25 percent on light trucks?

Was it surprising then, or blameworthy, that the U.S. auto industry went after light trucks and SUVs, that it followed a product strategy, which unfortunately put it right out of synch with the rest of the world. It's actually very striking if you look at the market structures in other parts of the world, how few U.S. vehicles get exported elsewhere, which is quite ridiculous when you think about it.

I agree with Governor Schwarzenegger on this. I think this has to be a two-way street. The industry is now getting massive government financial support and the government as we know is expecting a great deal from it. But the industry itself is also entitled to a coherent, consistent, and transparent regulatory and fiscal regime. And this is only going to be possible if it's compatible with properly devised and agreed environmental and energy

policies.

This may not play well for American ears, but I'm also pretty much in agreement with Bill Ford about the need to adjust fuel prices upwards and keep them stable. It certainly helped in Europe. I mean, it's not much fun paying \$6 a gallon for fuel, but that huge cushion of tax -- which is levied not proportionate to price but on a fixed amount per liter or gallon -- has been a very useful shock absorber in terms of calming down the impact of the oil price swings.

So after that long ramble, what about the aftermarket? I think automakers often look at it as a kind of very distant province, some kind of old Wild West. Yet I think -- and I'm being a bit parochial here -- it's the real heart of the industry or at least of the market.

This is the downstream side of the industry, as seen through the manufacturer's telescope: glitz and glamour; rows of shiny new cars; workshop, of course, well hidden. And I call this the "gin palace perspective." And here's the reality. As you see, the illustration is European, but it could just as well be American.

And the reason I took this one is it came from a presentation made by Bosal, a large European exhaust systems supplier with a big aftermarket business. They made this to an audience of vehicle manufacturer and dealer groups, stuffed-shirts, in the U.K. a few years ago, and it did not go down very well. And what was said, in essence, is, "Here's the true market." The true application is a seven-year-old, middle-of-the-range car, in European vernacular a "Gulf."

And the speaker reminded the audience that three out of four car sales transactions are used cars, not new cars. And here's Charlotte; it's proud owner, a lady who at the time earned 12,000 pounds per year, which at the exchange rate of that year was around \$18,000. I suspect this was also a bit of a sly dig at the under-representation of women in the audience.

But anyway, Charlotte didn't have money to throw around, and yet she had to keep mobile and keep her car serviced and repaired. So this is where she got it done. Not a gin palace, but a typical independent repairer. The presence of the gas station in front is just a coincidence.

But this is the heart of the aftermarket: open; all makes; competing for business every day; keeping Charlotte as a customer purely through performance, not through massive brand advertising and intimidation about, you know, go anywhere else and bang goes your warrantee.

A different world; and it has been two different worlds which coexist uneasily. Now, I've been naughty and picked this old picture of the Iron Curtain, somewhere in Germany, to symbolize the division of the aftermarket and indeed of the whole downstream sector of the industry. On the one side, behind us, free competition, and to use a term used this morning, "open architectures." On the other, command and control and closed architectures. And the watchtower is poignantly symbolic of what goes on, on the other side.

I think the vehicle manufacturer world is run on crazy principles, and it's actually going to break, if it's not broken already. But certainly for us in Europe, and I think to quite an extent in the U.S., it's the dealership system that's the glue that holds that artificial, controlled world together. Now I'll be

outrageous -- maybe not so outrageous.

I think it's an anachronism. I think it's an anachronism that's kept in place by legal protection against competition. The state dealer laws in this country, the block exemption regulation in Europe. In pure economic logic and consumer logic, it ought to go, but I'm not sure it will.

Is Barack Obama going to do for it what Ronald Reagan did to the Soviet system? I've not seen any signs of the task force thinking of radical changes in this sector, but they have other fish to fry and other things to preserve. And it might well be a bridge too far, at this point.

The influencing factors on the industry and the aftermarket are these, or perhaps I should call them stress factors. As we all know, there's a huge financial strain on manufacturers and suppliers. This has been deepened by recession and the struggle to recover from it. But I think, as I indicated, it has deeper roots, and the need to downsize vehicles and massively deploy new technologies is simply going to make it even worse. Not immediately in this recession, but beyond it, once we emerge from it and have to face the environmental and energy realities again.

I believe that as a consequence of these realities, and in the longer term, not in the next two or three years, the whole market is going to move to a higher plane of cost. Vehicles, because of the technology content, will cost more to purchase initially. Fuel will cost more in the medium and especially the long term. Vehicles will cost more in all likelihood to maintain and repair, but there will be a greater value in doing that and possibly a greater inclination to reinvest in them in that way and to keep them for longer periods. Retrofit, I

think, will become important.

And John Waraniak made a very, very interesting input on that, about the potential for the independent aftermarket, the aftermarket to accelerate the introduction of new technologies such as collision avoidance. And we've already seen it with GPS Navigation Systems, because just putting them on new cars is far too slow. I think we shall see in the end different consumer attitudes and trade-offs, and some of them are beginning to be a little evident today. Paul Johnson made an allusion to that.

Consumers, I think, will progressively take a more utilitarian approach to vehicle use, purchase and maintenance with perhaps less emphasis on self-expression. More attention will be paid to aftercare, which will be entirely good news for the aftermarket. The unanswered -- and for me at the moment, unanswerable -- question is: what happens to the dealers? How many, what roles? Will the system survive even with the numbers sharply reduced courtesy of GM and Chrysler, or will it break down with something else put in its place? I just don't know, absent that kind of catastrophic change.

I think most of these changes will, in fact, be relatively gradual. After all, the vehicle park takes 15 years or more to roll over. And above all, the aftermarket has coped with change before and will cope with it successfully again.

So the challenges are going to be much the same ones as in the past. Shifts in the market positions of individual brands, and shifts in product mix happen. The aftermarket deals with all brands and all models. It deals with new product introductions all the time, and it's dealt with new technology. So

this is not big news.

The influx of new technologies -- yes. But as Bill Haas reminded us, looking at that Chevrolet Citation, we've been there before. There is a risk that the manufacturers will try to do what they've attempted in Europe, which is use-to-use technology to lock in the customer, to force him or her back into the dealer workshop.

But quite honestly, I don't see the U.S. consumer and market standing for this kind of thing. Hell, we tried to get you guys to pay your taxes in an orderly and prompt fashion before 1776, and it didn't work too well. The slogan, "What's good for George III is good for America" was not a success. Anyway, joking apart, it clearly is vital that the independent repairers are properly equipped and trained to cope with the new stuff.

Now, one specific area that I've thought of that's not been mentioned at all so far in this conference is crash repair. I mentioned down-weighting, downsizing -- certainly down-weighting. There's a revolution already underway in the use of light weight materials, including things such as high strength steels and new assembly techniques, such as laser-stitch welding, which you can see along the door sills, for example, the VW Passat.

Structural repairs carried out to the newer vehicles not using the proper techniques can actually create a danger of the vehicle being structurally unsound in the event of a further heavy impact. And I would not like to be the insurer or repairer faced with a lawsuit. We have a looming problem with this in Europe, but I think there's an even bigger problem coming over here. Right to repair obviously remains as important as ever, if not more important in the

light of what I've just said. We keep on fighting for it in Europe, particularly trying to influence the European Commission and the European Parliament and the Counselor of Ministers. And the automotive industry tends to fight it.

It's well established in the U.S., and Canada is working at this moment to try to establish it there. But it's channel efficiency that's going to remain the priority issue, and we had discussion of that, including the incorporation of e-commerce techniques.

Now, it's a challenge, but it's also the aftermarkets greatest asset. You have an efficiency and ability to deal with a huge amount of diversity and incredible service levels and incredible cost and price pressures that actually doesn't exist on the other side of the fence.

A last twist is that I think overseas markets may require more attention. The U.S. vehicle brand mix has changed a good deal in favor of import, as we know, or foreign brands and the availability of parts for non-U.S.-designed vehicles is increasingly important. Once the U.S. industry recovers, which it will, it will operate in new ways. It will restructure, and in fact, it may have stronger overseas connections than ever before. Think about Chrysler and the role of Fiat in injecting new designs and technologies. There should be opportunities for collaboration with overseas aftermarket partners and this is going to work in both directions.

I'm not going to make detailed recommendations. I just don't have the knowledge to do that, but I will make three generic suggestions. One, be aware. Look beyond your immediate businesses, markets and customers to try to understand the changes that could happen in the wider circles of the

automotive industry and beyond. And, again, the e-commerce example is extremely telling. These things could create threats for you, but they can also open up monumental opportunities.

Second, be influential. Maintenance and repair are a huge business, socially, economically, environmentally critical. They matter; the aftermarket matters. It literally keeps the majority of people on the road. It's often underrated and understated. I think its voice needs to be heard more and more loudly by consumers and government agencies alike and perhaps vehicle manufacturers, too.

Thirdly, be ambitious. The aftermarket is made of free agents and businesses that set their own destinies that really compete openly. Don't be dictated to. Be creative. But, in fact, when I look back at my experiences in the aftermarket over the last 25 years, I realize that it's the aftermarket that's been the source of practically all the genuine innovation in the downstream sector of the industry. So I am confident, and actually I think this financial crisis is indeed a tremendous opportunity for the aftermarket if it's played right.

Thank you for your attention.

JOHN WARANIAK: Well, would you like to take any questions?

JOHN WORMALD: I will, with pleasure. We have one here.

AUDIENCE: Thank you very much for your insights. I have a question. So given the American public has once again proved that when the fuel prices came down we're going to go back to buying big cars. What's the tipping point here? What's going to cause us to finally go to a smaller, more fuel-efficient vehicle? Is it going to be government or some other event?

JOHN WORMALD: I suppose some other event: if there was some serious interruption of supply. What was the tipping point before? What provoked the CAFÉ regulations and that attempt at downsizing? It was the Iranian revolution, which simply shut down the Iranian oil industry for six months, and that caused really grave concerns about energy, supply, security and all those things.

I think apart from that, I can't see any other actor than the government that can actually influence that. Now, I know politically that's going to be the hell of a hard sell, but I think fundamentally Bill Ford's right on that. Who else is going to do it?

You can try, and the IEA was talking about technical standards. And we had a discussion and I went to a meeting of theirs, and we had a discussion about a carbon tax. But any plausible level of carbon tax, you know, \$50 per ton -- well, think what gasoline costs. How many gallons in a ton? You pay about \$2,000 for a ton of gasoline. So a \$50 carbon tax is absolutely neither here nor there. It's in the noise level.

I think something is going to have to be done about fuel prices, maybe to move to something like the Canadian or Australian level, which is -- between price and taxation -- between the current European and U.S. levels. Now, that, of course, has a certain attraction for the U.S. government. Think about the amount of money that will come in. Yes, politically, very difficult. John?

JOHN WARANIAK: Thank you. I enjoyed your comments, John. I think one of the things, particularly the aftermarket that it's no longer an

afterthought --

JOHN WORMALD: Yeah.

JOHN WARANIAK: -- and your point about the innovations coming to the aftermarket: the point that horsepower and greenpower can co-exist.

JOHN WORMALD: Yes.

JOHN WARANIAK: And I think the branding part of the aftermarket you mentioned, a great analogy with the cold war, the wall: bringing the technology across the wall, so to speak, is going to be driven by all those new drivers.

JOHN WORMALD: Yes.

JOHN WARANIAK: They're the ones that want the innovation, so they will drive and vote with their wallets. Any comments on that?

JOHN WORMALD: Yes, but that takes time as well. No, I agree. I think the newly licensed drivers come from a different generation for you and certainly for me. Their attitudes are different, their expectations are different. They will take up new ideas, and I think that is where the source of change is.

The problem is, is that's not necessarily fast enough, and some additional pressure may need to be exercised.

JOHN WARANIAK: Yeah. And I think that's where the aftermarket shines.

JOHN WORMALD: Absolutely.

JOHN WARANIAK: You know, to accelerate that.

JOHN WORMALD: And I think that idea of retrofit is absolutely brilliant, and what you mentioned about open architectures. That's why I threw

in those words about open and closed architectures in describing the two systems. And one of the reasons that product proliferation has been so costly, is it's been done on a closed architecture basis.

Maybe we need to loosen up the designs. Everything's being designed very tight to minimize weight, to minimize space. Maybe we need to open it up a bit, have more carry-over in all those things.

There's a certain element of false accounting in this; that you try to reduce the unit weight, the standard cost and you don't measure all the consequences.

(CONCLUSION OF SESSION)

Transcribed by: ksc/alw