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Seminars

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Session

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“Creating New Automotive DNA”

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Thank you, Kim. It’s a pleasure to be here in such good company.

CAR could not have chosen a more appropriate theme for this conference, which is taking place in perhaps the most turbulent year in the history of our industry.

And the topic of this session – the role that automobiles should or could play in the environmental and energy equation – forms the eye of this perfect storm.

Unlike the world’s supply of oil, there is no scarcity of opinions out there on this topic.

I'm here to share GM's vision with you. . .the strategic choices we've made and the risks we've assumed. . .as we attempt to solve the very real, very daunting issues facing our world and the auto industry.

Despite the very difficult market that automakers face in the United States currently. . .our industry is experiencing tremendous growth elsewhere, in emerging markets like China, India and Russia, to name a few.

There are about 820 million vehicles in the world today. With rapid sales growth in many regions, more people are behind the wheel of a car than at any time in history.

As these emerging markets develop, we expect that at least 15 percent of the world's population will own a vehicle by 2020 – that's more than a billion vehicles.

To put that in perspective, if you were to park all of those vehicles end-to-end, you would circle the globe 125 times!

We are forecasting that the vehicle market in China will surpass the volume of the U.S. market to become the world's largest by 2014. . .and perhaps even sooner.

This fact alone assures that energy supply – and the impact on oil prices – will remain critical for the foreseeable future.

This unprecedented growth in vehicle ownership only heightens concerns about the automobile's almost exclusive dependence on petroleum.

Today, more than a third of the world's energy needs are met with petroleum, and the automobile is 96-percent dependent on fossil fuels.

Supply and availability, fuel prices, sustainable growth, climate change, or even national security – pick your issue, but the common denominator is oil.

As we look at this picture today and consider the future of the automobile, one fact stands out above all others:

Going forward, we can no longer rely primarily on oil to supply the world's automotive energy requirements. It's just that simple and obvious.

Defining the auto industry's course going forward in terms of priorities, choices, and actions remains an open field. Hopefully, conversations like the one we're having here will help us determine what needs to be done and our individual roles in coming up with solutions.

While we have our eye on the future, we're not ignoring consumers' needs today. Thanks to strong designs, excellent quality and competitive fuel economy, our small and midsize cars are experiencing double-digit sales increases.

And we are pushing to further improve the efficiency of all of our vehicles. For example, we recently announced the replacement for the current Chevy Cobalt, the Chevy Cruze, which will get an additional nine miles per gallon in fuel economy when it debuts in 2010.

And just this morning, we announced that we are building on the segment-leading fuel economy of our full-size pickups and SUVs with new models of the 2009 Chevy Silverado, Chevy Tahoe, GMC Sierra and GMC Yukon.

These new Extra Fuel Economy models use a combination of mechanical, aerodynamic and mass-reducing enhancements to deliver a 5-percent increase in EPA-estimated highway fuel economy, and more than 7-percent improved mileage in city driving.

These improvements mean that customers who need the capability of full-size pickups and SUVs won't have to sacrifice the very best fuel economy available in the marketplace today.

As General Motors prepares to enter its second century, we will continue to refine the internal combustion engine and transmissions, improve diesel technology and expand the use of biofuels such as ethanol.

A word about ethanol: while primarily grain-based biofuels are available today, GM is aggressively encouraging next-generation ethanol from all sources, including cellulosic material such as switch grass, forest and farm residues – and even trash!

We recently announced partnerships with two biotech firms that are working to produce cellulosic ethanol made from biomass, Coskata Incorporated and Mascoma Corporation. By the way, Wes Bolsen from Coskata will speak at the Advanced Powertrain Forum on Friday morning.

GM believes that expanding the use of cellulosic ethanol can help reduce CO2 emissions by up to 84 percent, compared to gasoline. Along with Ford and Chrysler, GM has pledged to make 50% of our production volume flex-fuel capable by 2012, with corresponding infrastructure growth.

Speaking of infrastructure, we need more of it.

GM has formed partnerships to locate more than 300 new E85 pumps in 15 states over the last three years.

Last month, we announced that we are forming a new partnership with the National Governors Association.

This collaboration will help us establish relationships with 8 to 10 selected states to expand the national infrastructure and distribution network for E85 ethanol – in particular, next-generation ethanol.

But we need to move faster if we hope to achieve the benefits that biofuels offer consumers in the near-term.

These benefits include reduced greenhouse gas emissions; reduced U.S. dependence on foreign oil; and increased economic support of a domestic renewable fuel industry.

Looking further down the road, we increasingly believe that the ultimate solution to the issues of energy independence and the environment involves the electrification of the automobile – as soon as possible. In fact, there is now a clear shift in the debate, from “if” this will happen to “when.”

This means we’re going to develop extensions of current technology like hybrids and plug-in hybrids, as well as completely new propulsion systems like fuel cells and the Chevy Volt, that are driven primarily by electricity, not petroleum.

And, it means we will launch high-volume, mainstream vehicles in the next few years, instead of just piloting demonstration fleets or producing niche vehicles.

In fact, GM is the only automaker that has chosen to work on every potential pathway to achieve energy competition and choice . . .because we also believe it’s unlikely there will be a single perfect solution to our dilemma around the world.

As I mentioned, hybrid powertrains are a useful step on this journey. The modest electrification this technology offers is a natural extension of our current mechanical propulsion paradigm.

GM has five hybrid vehicles such as the Chevy Malibu and the Saturn Aura on the road today, and will offer three more over the next year. And by 2012, we will have more than 20 hybrid models available for consumers, in cars, crossovers, pickup trucks and SUVs.

Going one step beyond conventional hybrids, we've announced that we will produce the Saturn VUE plug-in. It will feature an advanced lithium-ion battery and potentially twice the fuel economy of any SUV on the road today.

Aside from hybrids and plug-in hybrids, GM is working very aggressively to bring electrically driven vehicles to market.

Despite movie titles to the contrary, I can say enthusiastically that the electric car is alive and well!

With the VUE and the Volt, we are building on the capabilities that we initially developed from the EV1 program to significantly expand our commitment to electrically driven vehicles.

We're moving from a company that, for 100 years, has been based on petroleum-powered automobiles, to one that will eventually be based on electricity.

This is a big deal for us and for people around the world.

I'm happy to report that the Chevy Volt, which represents the next step of our journey, remains on target to begin production in 2010.

You'll be hearing more about the Volt on Thursday from Bob Boniface, the director of design for GM's E-Flex system, and Denise Gray, director of energy storage systems, on Friday, so I won't go into a lot of the details today.

But I would like to note that for customers, extended range electric vehicles like the Volt will save their owners a lot of money in operating expenses.

A conventional vehicle that gets fuel economy of 30 miles per gallon costs about 14 cents per mile just for the cost of fuel, at \$4.20 a gallon.

When you do the math to convert kilowatt hours of energy to cost per mile, an extended range electric vehicle like the Volt will cost about 2 cents a mile for electricity from the grid –a penny if you charge off-peak.

This amounts to a reduction in running costs, including the cost of electricity, of at least \$1,700 per year for an average driver. So, it's not going to be difficult for customers to see the advantage in their pocketbooks.

However, we need to step back and look at the bigger picture regarding plug-ins. It's important that we have a candid conversation among consumers, government, utilities and the auto industry about what's required to bring plug-in electric vehicles to market in volume.

We need further development of advanced batteries, the power grid, and power-generation technologies, to develop a large market for electrically driven vehicles. That's how we will ultimately make a sizable dent in our petroleum dependency.

Toward that end, last month we announced that GM, together with more than 30 major utility companies in the U.S. and Canada, and the Electric Power Research Institute, have launched a coalition to prepare plug-in vehicles for commercialization in North America. This coalition has operations that span 37 states and three Canadian provinces.

Beyond hybrids and plug-ins, GM believes hydrogen fuel-cell electric vehicles are the right answer for the future.

As energy carriers, electricity and hydrogen have some pretty compelling qualities:

- They can be used interchangeably;
- They can be produced from diverse energy pathways;
- They can be generated from renewable sources;
- And they have the potential to displace a substantial amount of petroleum, at an affordable price.

Hydrogen is the most plentiful element in the universe, so there's no danger of running out of it.

It can carry energy produced from many sources, including electricity, natural gas, and water.

As with ethanol, the biggest challenge with hydrogen is the lack of infrastructure. Sustained government support will be necessary, similar to the effort to create the interstate highway system here in the U.S.

GM isn't waiting for that to happen, however. We have taken a leadership role in developing hydrogen fuel-cell electric vehicles.

We're testing a fleet of more than 100 Chevy Equinox fuel cell vehicles in the real world with Project Driveway, the largest-ever fuel cell vehicle market test.

We currently have nearly 90 of these vehicles on the road. They're being driven by customers, and our business partners Disney and Virgin Atlantic, in L.A., New York, and Washington D.C. The U.S. Postal Service just announced in July that they were going to participate as well.

We'll also be testing the European version of the Equinox Fuel Cell in Berlin this year, and plans are proceeding to field additional test vehicles in China, Korea and Japan.

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All of these efforts – improving internal combustion and diesel technology; expanding the use of biofuels; and the electrification of the vehicle – get us closer to making petroleum-free driving a reality.

We, as automakers, need to take the lead in transforming personal transportation. . . .and we are. . .by developing responsive, relevant technologies and then driving down their costs. We understand this. But there are very important roles for others as well.

There's no question that government has to play a significant part. One of the things that government can do. . .and I'd argue, must do to promote energy independence for any nation. . .is proactively support the development of advanced technology.

In the U.S., the government must fund a major effort to strengthen domestic battery capabilities and other advanced technologies, similar to the initiatives that are being made by the governments of other countries, most notably China and Japan.

But the successful commercialization of advanced technology vehicles requires more than just relevant technology and visionary policy from government.

These vehicles must be seamlessly integrated with the capabilities of the utility companies and the power grid. Regulatory agencies must be active in the development of guidelines to ensure wide-spread availability of safe, efficient vehicles. Infrastructure must be put in place to refuel vehicles that run on biofuels, electricity, or hydrogen. The public must be educated about the benefits of these new technologies.

Frankly, to find the best solutions, all of us -- automakers, utility companies, government, universities,

national labs, NGOs, and private entrepreneurs – need to work together.

The United States Climate Action Partnership is a good example of a group that's trying to make a difference using that approach.

U.S. CAP is a coalition of major businesses and environmental organizations that was formed last year to urge the U.S. government to move quickly to enact national climate legislation.

I'm proud to say that GM was the first automaker to join in support of this non-partisan group's efforts.

U.S. CAP is taking a leadership role in discussions to address climate change through the use of technology on an economy-wide, market-driven basis.

U.S. CAP will continue to work with legislators to help our federal government create a strong national policy framework that will ultimately provide for significant reductions of greenhouse gas emissions.

But while U.S. CAP's "call to action" for national legislation is important, GM believes that the U.S. government has an even bigger role to play to support the transformation of the auto industry that is under way.

Here's a news flash: the domestic auto industry has a significant impact on the U.S. economy.

It directly employs a quarter of a million people, provides health care benefits to two million Americans, and pension benefits to one million retirees and spouses.

The domestic auto industry also has invested a quarter of a trillion dollars in the U.S. over the last two decades, spends \$12 billion annually in research and development – more than any other sector – and is the largest purchaser of raw materials and computer chips in the U.S.

Our industry is transforming its business, developing new technologies, and shifting our product plans to meet a dramatically changed market. . . against a harsh economic cycle and global competition.

Beyond enacting a national greenhouse gas program that emphasizes the use of advanced technologies and that spans the entire economy, on a market-driven basis, GM believes our government should take the following actions:

- Undertake consistent steps to promote and develop diversity in U.S. energy supplies.
- Establish clear, attainable regulations, and one federal set of requirements.

- Help revitalize manufacturing by allowing automakers to “unlock” investment tax credits and prepayments if they’re used for re-investment in the U.S., or by providing funding support to convert facilities to produce advanced-technology vehicles and components.
- Accelerate the use of low-carbon fuels by providing funding to expand ethanol infrastructure and develop hydrogen infrastructure.
- And finally, energize consumers about advanced technologies by providing tax credits and other incentives for people who purchase plug-in, extended range electric, and fuel-cell vehicles.

I’d like to elaborate on that last point a bit, because we feel so strongly about the importance of offering consumer incentives for adopting these new technologies.

Both the House and the Senate have versions of consumer credits for plug-in electric vehicles on the table.

We need the most robust consumer credit incentives possible – and we need the certainty that the credit will be available by the time these vehicles enter the market.

Getting a meaningful consumer credit for plug-in electric vehicles is a must. . .and it needs to be substantive to make a real difference.

At GM, we often say that fuel cells, and the electrification of the automobile, will create a new automotive DNA.

The new DNA exchanges the internal combustion engine for electric propulsion. . .petroleum for electricity. . .and mechanical systems for electrical and electronic controls.

Making this transformation is good business. . .and it's the right thing to do. . .and it's what consumers are asking for. . .but getting there will require a collaborative effort on a scale that we have never seen before in our industry. . .and all of us have a role to play.

At GM, we are building a winning company for the long-term, based on sustained success, not short-term results.

Going forward, winning car companies must meet two tests:

- They must be able to compete successfully in markets around the world;
- And they must be true leaders in the development of alternative fuel propulsion systems.

GM is ahead on both of these fronts.

Our industry is in the midst of a revolution, and GM is making the necessary changes to compete and win in a new world. . .through new technologies. . .new partnerships. . .and a new focus on a second century of putting people around the globe on wheels.

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