

**North American International Auto Show**  
January 13, 2009  
Detroit, Mich.

**Harry Maruyama, president & CEO, DENSO International America**

Good morning and welcome.

We are at a defining moment in automotive history.

We believe the auto industry is an important part of North America's manufacturing base, and the industry's future success depends on the recovery of both the U.S. and global economies.

At DENSO, North America has been an important market for our growth, and we are committed to the auto industry here.

We will continue to support our customers by providing advanced, high-quality products that meet customer needs.

Recently, DENSO has seen a significant drop in sales due to the severe downturn in the auto market.

As a result, we have revised our forecast for the fiscal year ending March 31.

DENSO will use these challenging times to find new ways to do things—analyzing procedures and operations from the ground level up.

This is an opportunity to approach even the smallest projects with new energy and a fresh perspective.

DENSO has a long history here.

In 1964, we sold our first product in the U.S.

For more than 20 years, DENSO has been manufacturing products in North America, opening our first plant right down the road in Battle Creek.

Today, DENSO operates 25 manufacturing plants in North America.

Our future growth depends on technology innovation.

At DENSO, we will continue to investigate new ways to meet customer and society needs here and worldwide.

Now, here is Mr. Tokuda to talk with you about our R&D plans and our latest technology advances.

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### **Cultivating the Green Machine**

**Hiromi Tokuda, executive vice president, DENSO Corporation**

Good morning.

Recently, I came across some data that made me pause.

It showed that as many as 70 percent of Americans believe obtaining a “green” designation for a company is simply a marketing tactic.

If I can make anything clear to you this morning, it would be this:

DENSO’s green efforts are not just for show.

As the global automotive market expands, concerns of global warming, oil consumption, and especially in North America, the need for energy independence will further accelerate.

Developing environmentally friendly vehicles that consume less fuel and emit fewer CO<sub>2</sub> emissions is a big issue facing the automotive industry today.

We must solve this if we are to realize a sustainable, advanced automotive society where people, cars and environment co-exist.

At DENSO, we are doubling our efforts to meet these goals and to preserve and protect the environment.

Our focus is on reducing the environmental impact of a product over its lifecycle. This includes procurement, manufacturing, use, transportation, and disposal.

With that said, we are very excited to make this announcement.

DENSO has developed a new radiator tank made with 40 percent plant-derived resin material.

Used in the engine compartment, our new radiator tank is resistant to extreme heat and durable.

Its green benefit comes over its lifecycle—it can reduce CO<sub>2</sub> emissions by more than 30 percent when compared with conventional tanks. This is because plant-based resins are

made from plants that absorb CO<sub>2</sub> during photosynthesis. This makes the plant resin carbon-neutral.

We will begin mass-producing our new radiators this year.

In other news, we recently began research on cultivating a type of seaweed, or algae, that has the potential to resolve two issues for the auto industry—global warming and energy shortages.

The microscopic algae, which live in ponds and hot springs, absorb CO<sub>2</sub> through photosynthesis and yield a light oil from the CO<sub>2</sub> and water.

In fact, these algae are excellent workers—they absorb 10 times the amount of CO<sub>2</sub> as forests in comparing a similar sized area.

For this reason, we plan to develop a system using this algae technology to absorb CO<sub>2</sub> emissions generated from our own factories.

Next, let me explain our directions and latest achievements in developing products that reduce vehicle fuel use and CO<sub>2</sub> emissions.

DENSO focuses on four main areas:

- make products smaller, lighter and more efficient
- improve the efficiency of combustion engines, both gasoline and diesel
- improve energy management
- And, increase technology for hybridization, including idle stop and start, and hybrid vehicle systems

Starting with smaller, lighter and more efficient products,

This year we plan to launch a new air conditioning system for passenger cars that uses our ejector technology.

The newly developed system is the result of our continued work on DENSO's world-first refrigeration unit using an ejector cycle, introduced on refrigerated trucks in 2003.

Our success in reducing the size of the ejector and making improvements for installation resulted in a car air conditioner that decreases its fuel use by 30 to 40 percent at maximum efficiency depending on vehicle and climate conditions.

Also introduced late last year is our new air conditioning unit for compact cars. It is about 20 percent smaller, 12 percent lighter and consumes 14 percent less power than conventional units. The result is improved fuel economy and more legroom for the front passenger.

The trimmed-down size of the overall unit was achieved by integrating our newly developed compact blower unit with the main unit.

Now, I'd like to talk about efficiency improvements for combustion engines—both gasoline and diesel.

For gasoline engines, fuel-efficient direct injection systems are fast penetrating the North American market and will become a major fuel system for vehicles here after 2010.

DENSO has secured new contracts as a direct injection component supplier in North America.

Our direct injection technology can achieve the world's smallest fuel-particle spray—approximately 10 to 15 microns. This is smaller than the thinnest strand of human hair.

Using advanced analysis technology, DENSO's injector and pump provide an optimal spray for combustion, resulting in less fuel use, fewer hydrocarbon emissions and higher engine output.

We're not stopping here though. Currently, DENSO is developing technology to atomize fuel into even smaller-sized particles for greater efficiency.

For diesel engines, our 200 Mega Pascal (MPa) common rail systems were recently introduced on passenger cars in Europe.

Our latest generation is available for both piezo and solenoid injectors and will be able to meet various customer requirements including cleaner emissions, better driving performances and lower cost.

By 2010, our 200 MPa systems will debut on passenger cars and commercial vehicles worldwide including North America.

Let's now turn to energy management technology.

This is our unique approach to reduce, recover, store and reuse fuel energy lost or not used for driving. Currently, we estimate this to be about 80 percent. At DENSO, we see this as a huge opportunity to improve energy efficiency throughout a vehicle.

We are accelerating development activities in this area by combining our technologies and expertise in various business segments.

For example, in combining our knowledge of electric and powertrain systems, we have developed a concept or index called "DENPI," which optimizes fuel used in generating a vehicle's electrical power.

Let me explain.

The amount of fuel used to supply power for a car's alternator, which generates electricity for the vehicle, varies depending on driving conditions. If we can better manage the alternator's charge, we can improve its power-generation efficiency.

Here's another example of energy management.

Our engineers in air-conditioning, electric, and powertrain systems are currently developing a cold storage system that houses cold energy and then directs it as needed to the cabin when the engine powers down such as at idle stop.

Our experience and know-how in a variety of business segments will be useful in finding innovative solutions for vehicle improvements and fuel savings.

Lastly, we are aggressively moving ahead with developing more technology for hybridization. This includes idle stop and start systems, or micro hybrid systems, as well as more complete systems for hybrid vehicles.

While the global share for idle-stop systems and hybrid-vehicle systems using electric motors for idle stop or driving is currently only 1 percent, we expect this to rise. We also expect the development of electric vehicles to progress further.

In November, DENSO launched the world's first permanently engaged starter for idle stop and start systems in the European market. With a permanent connection to the engine, the starter contributes to 3 percent improvement in fuel consumption, and quicker and quieter idle starts.

Currently, we're developing components for next-generation idle stop and start systems.

Now let's look at hybrid vehicles that use fuel energy and electricity in combination.

For this system, in addition to the engine, there are three key components—the battery, inverter, and motor generator.

Here's how it works.

Electric power is supplied from high-voltage batteries to the motor generator through an inverter. The inverter converts the battery's direct voltage to alternative voltage. The motor generator drives the car when engine efficiency is low, such as at starting and acceleration.

In 2007, DENSO developed a higher-power compact inverter that raises the output of semiconductor power devices by about 60 percent. Our unique product features a cooling structure to offset additional heat generated by the increased power.

To accomplish this, we applied our expertise in the areas of engine cooling and semiconductor devices.

Currently, we're developing a motor generator for hybrid vehicles by utilizing our knowledge in designing and manufacturing starters and alternators for conventional vehicles.

DENSO's experience in many of the core technologies necessary for developing hybrid systems and components positions us as a reliable supplier for hybrid vehicles.

This also will help us meet customer needs for future electric vehicles.

In closing, I want to re-emphasize that future vehicles must continue to be more environment friendly—consuming less fuel and emitting less CO<sub>2</sub>.

At the same time, driving should be an enjoyable experience.

DENSO is committed to both—satisfying environmental concerns while making contributions that maximize driving comfort and convenience.

DENSO has been contributing to the U.S. auto business for more than 40 years, and we plan to be here for many decades to come.

At our North American headquarters in Southfield, we recently expanded our Technical Center for a third time since 1984 to help us research new ways to add more product value for our customers.

There, we have close to 300 engineers dedicated to the areas of environment, safety, comfort and convenience.

We will do all we can to provide advanced technologies and green products that meet the needs of society and our customers here and worldwide.

Thank you for coming.