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Montana

Rhonda Whiting
Montana

May 1, 2007

MEMORANDUM

TO: Council Members

FROM: Terry Morlan

SUBJECT: Presentation on Electric Hybrid Vehicles

Steve Marshall of the Cascadia Discovery Institute (formerly with Snohomish PUD) will give the Council a presentation on electric vehicles. Plug in electric hybrid cars increasingly are being touted as part of the solution to climate change and other environmental effects of transportation activities.

Plug in electric hybrid vehicles could have a significant effect on electricity demand and potentially provide demand response and emergency supply options for the power system in the future. This is a possibility that we will need to at least recognize in the next power plan, so this will be a good introduction to the topic.

I have attached two Seattle Times articles that Steve sent me. I have also attached the agenda for a conference on flex-fuel-hybrid vehicles that the Cascadia Discovery Institute has organized.

Attachments

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Plug-in energy independence

**BY STEVE MARSHALL
AND BRUCE AGNEW**
Special to The Times

Imagine a car that gets more than 100 miles a gallon, reduces greenhouse gases and helps free America from its reliance on foreign oil. There is growing bipartisan support and interest for just that kind of car — a plug-in, flexible-fuel hybrid vehicle. And on June 1 at the Microsoft Conference Center, policymakers and the public will be able to see actual plug-in hybrid cars that can get 100 mpg, and hear experts discuss steps to help “end our addiction to foreign oil.”

Like hybrids on the road today, such as the Toyota Prius, plug-in hybrid cars run on electric power with a gasoline (or biofuel) engine backup. The difference is that a plug-in hybrid can top off its batteries by plugging into the electric power system instead of using the gasoline engine for recharging. For shorter trips, such as commuting to work, the plug-in hybrid can get 100 miles to the gallon or more because it hardly needs to use the gas engine. The gas engine itself can become a “flexible fuel” engine running on ethanol blends or biodiesel blends, further reducing oil dependence.

A relatively small shift to plug-in hybrids could save Puget Sound drivers millions of gallons of gas a year and reduce carbon-dioxide emissions by more than a million tons a year. Topping off hybrid batteries from the electric power grid is far more efficient than recharging from gasoline engine power — which is why carbon-dioxide emissions drop so much with plug-in hybrids.

But, it is the immediate threat to national security from foreign oil dependence that is finally driving strong bipartisan support for plug-in hybrid cars and similar measures. At next week’s conference, former CIA Director James Woolsey and Sen. Sam Brownback, R-Kan., will be among those describing the national-security risk from reliance on unstable oil-producing nations; Brownback and others have sponsored legislation, backed by a coalition of labor and environmental groups, to accelerate production of plug-in hybrid vehicles. Sen. Maria Cantwell, D-Wash., will also speak on the coalition’s



JOHN W. FLEMING / KRT

efforts.

In his State of the Union address, President Bush also called for an end to our foreign oil addiction, and has rolled out initiatives including support for plug-in hybrid vehicles.

We can work to pull together an integrated Puget Sound transportation solution that would dramatically reduce gasoline use, increase transportation efficiency and cut greenhouse gases — and reduce our dependence on foreign oil. There are three steps we need to take now to get ahead of the curve.

First, we need to convene state and regional leaders in transportation, electric utilities and government to work together on a set of overall recommendations. For example, a cellphone-type chip could be required that allows recharging only during

off-peak hours, in order to use our electric power system more efficiently. Hybrid bus transportation, including school buses, could be encouraged. (A few Washington state school districts have joined a national school bus plug-in hybrid campaign.) Corporate and government vehicle fleet purchases could be linked to the national “plug-in partners” campaign. Parking garages and park-and-ride lots could incorporate recharging stations.

Second, we need to encourage a Washington state-based transportation-technology industry to advance solutions such as using strong, lightweight composite materials for trucks and buses and shifting to complete electric-drive vehicles to save weight. Boeing is a world leader in composites and we have high-tech research centers such as Battelle and Energy Northwest to help develop technology solutions. Paccar last month announced an initiative to incorporate lightweight material and hybrid technologies in its trucks.

Biofuels, using renewable Washington state farm and forest products, can be further encouraged. Like biotech, transportation tech can become a hallmark of the Northwest economy.

Finally, we need to move fast. Plug-in hybrids can be ready to roll well within the planning horizon for regional transportation and power organizations. We need a thoughtful, integrated transportation approach now before we lose a once-in-a-generation chance at an integrated transportation solution.

Such a solution will also require thoughtful leadership to make sure we have the domestic electric power to move away from our dependency on oil while solving our commuting problems, especially in the Puget Sound basin.



Steve Marshall is chairman of the Municipal League of King County. Bruce Agnew is director of the Discovery Institute's Cascadia Center, which is working on regional transportation solutions. The Cascadia Center and Microsoft are co-sponsoring the June 1 conference in Redmond with government, transportation and energy leaders.

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Guest columnists

Recharging the nation's energy policy

By Steve Marshall and Bruce Agnew

Special to The Times

Alan Mulally, Ford's new CEO, helped lead Boeing into a new world of carbon-fiber, fuel-efficient technology with the 787 Dreamliner. In an intensely competitive global marketplace, Boeing is back on top again in sales over Airbus, which is struggling to catch up with Boeing's fuel-efficient technologies.

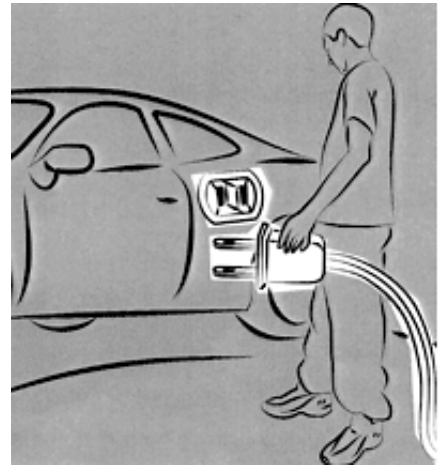
Mulally now faces a similar global fuel-efficiency race in the even more competitive auto industry, where major manufacturers are predicting that they will soon make hybrid cars that will get more than 100 miles per gallon. One manufacturer predicts that average commuters might never have to fill up their gas tanks again.

This time, the competitor to beat is Toyota. Last July, it announced plans to make a plug-in version of its gas-electric hybrid cars, such as the Prius. The plug-in hybrid would be able to recharge its larger batteries from a regular electric outlet. Toyota claims the car would be able to "travel greater distances without using its gas engine, it will conserve more oil and slice smog and greenhouse gases to nearly imperceptible levels."

A few days ago, General Motors announced its Chevy Volt plug-in hybrid electric car, which can be driven up to 40 miles on batteries alone and recharge itself with an onboard gas generator — or by plugging into a standard electric outlet. Robert Lutz, GM's vice chairman for product development, estimated that for 78 percent of commuters in the United States whose daily trip to work is 40 miles or less, the Chevy Volt would make the commute using only the battery "without burning a drop of petroleum."

But Detroit says it faces a serious problem. GM, Ford and DaimlerChrysler recently told the White House that the U.S. is falling behind Japan and Toyota in battery development needed to power the stunningly fuel-efficient plug-in hybrids. The so-called Big Three automakers implied that they could lose the global race without government help on new battery technology.

Toyota made billions last year from strong sales and profits, and has the financial muscle to do what it takes to refine the high-powered lightweight batteries to power the new generation of plug-in hybrids. But Ford and GM lost billions last year. Although DaimlerChrysler made a profit, its Chrysler operations lost



ANYA JOHNSON / OP ART



Bruce Agnew



Steve Marshall

\$1.5 billion last year. This fall, Ford mortgaged almost all of its U.S. assets to raise \$18 billion to stay in the game.

Enter Mulally, who took over at Ford just four months ago. He knows that Boeing bet the company on the jet age in the 1950s with the 707 (powered by a civilian version of the military J57 jet engine and with initial Air Force purchases of the 707's KC-135 variation) — and then dominated the commercial-jet aircraft market for decades. He also knows that Boeing made another key bet on the 787 when it developed and used cutting-edge fuel-efficient technologies, including lightweight and stronger carbon-fiber materials.

Back to Detroit's question: Isn't it appropriate for the federal government to help with a technology that would dramatically reduce our dependence on foreign oil, strengthen national energy security and reduce greenhouse-gas emissions? If the Department of Defense helped design and fund the interstate highway system and the Internet, shouldn't working to end our addiction to oil be at least an equally compelling national priority?

A partial answer is that the federal government is already funding some advanced battery research and is researching the benefits of plug-in hybrid vehicles. Last month, the Department of Energy's Pacific Northwest National Laboratory in Richland evaluated the impact of plug-in hybrid electric vehicles on foreign oil imports, the environment, electric utilities and the consumer. If recharging were limited to night and other "off peak" times, the study estimated significant savings for the economy and a potential for lowering greenhouse gases substantially. The study said idle capacity of the electric power grid "is an underutilized national asset that could be tapped to vastly reduce our dependence on foreign oil."

The remaining question is whether the federal government will do all it responsibly can to accelerate the day when flexible-fuel, plug-in, electric hybrid vehicles roll off assembly lines in the United States. Will President Bush offer a specific plan of action tonight in his State of the Union address, and will Congress work with the administration to make it happen?

We may know soon if there is a bipartisan road map to help end our addiction to oil in transportation, which will strengthen national security, help the economy and improve the environment.

Steve Marshall is chairman of the Municipal League of King County. Bruce Agnew is director of the Discovery Institute's Cascadia Center, which is working on regional transportation solutions. Experts and policy-makers will discuss the role of government and other questions related to replacing foreign oil with domestic fuel and electric power in transportation at a May 7 Cascadia conference at the Microsoft Conference Center in Redmond.

Jump Start To A Secure, Clean Energy Future

Part of Cascadia's TransTechEnergy Series

MAY 7, 2007

Microsoft Executive Conference Center, Redmond, WA

Draft: May 1, 2007

Confirmed*

8:00 a.m. **Registration**

9:00 a.m. **Welcoming Remarks**

Steve Marshall, Cascadia Center*

Hon. Rosemarie Ives, Mayor, City of Redmond*

Ron Sims, King County Executive*

Michael Rawding, Vice President, Special Projects, Corporate Affairs,
Microsoft*

Keynote Address

Tyler Duvall, Assistant Secretary for Transportation Policy, U.S.
Department of Transportation*

Auto Industry Update

Buzz Rodland, Rodland Toyota, WA State Auto Dealer Association*

Bill Reinert, National Manager, Advanced Technologies Group,
Toyota USA*

PANELS

10:15 a.m. **National Security Imperatives for Flex-Fuel Plug-In Hybrid Vehicles**

Anne Korin, Co-Director, Institute for the Analysis of Global Security –
Moderator*

Dr. Gal Luft, Co-Director, Institute for the Analysis of Global Security*

Hon. Dave Reichert, U.S. House of Representatives*

BREAK

11:05 a.m. **Climate Change Imperatives for Flex-Fuel Plug-In Electric Vehicles**

K.C. Golden, Policy Director, Climate Solutions – Moderator*

Dr. Andrew Frank, Professor, University of California, Davis*

Hon. Jay Inslee, U.S. House of Representatives*

Dr. Philip Mote, Climatologist, University of Washington*



LUNCHEON PROGRAM

Keynote by Jon Wellinghoff, Commissioner, Federal Energy Regulatory Commission*

12:30 p.m. **Videos of U.S. Senators Jeff Bingaman, Maria Cantwell, Larry Craig, Orrin Hatch, Joe Lieberman, and Barack Obama**

1:00 p.m. **Plug-In Hybrid Electric Vehicles: How Soon and What Impact?**
*Roger Duncan, Austin Energy/Plug-in Partners – Moderator**
Robert Graham, Electric Power Research Institute*
Felix Kramer, Founder, California Cars Initiative*
Greg Rock, Co-Founder, The Green Car Company*
Nicholas Zielinski, Vehicle Chief Engineer for the Volt, General Motors*

2:00 p.m. **Federal Government: Removing Road Blocks and Creating Incentives**
*Slade Gorton, Former U.S. Senator – Moderator**
Tom Alberg, Madrona Venture Group*
Paul Dickerson, Chief Operating Officer, Office of Energy Efficiency and Renewable Energy, U.S. Department of Energy*
Neil Schuster, President, ITS America*
Steve Specker, CEO, Electric Power Research Institute

BREAK OUT SESSIONS

3:30 p.m. **1. Regional Pilot/Demonstration Project**
*Steve Marshall, Cascadia Center – Moderator**
Dr. J.W. (Bill) Rogers, Jr., Associate Laboratory Director – Science and Technology and Chief Research Officer, Idaho National Laboratory*
David Kaplan, V2Green*
Michael Kintner-Meyer, Pacific Northwest National Laboratories*
Douglas MacDonald, Secretary, Washington State Department of Transportation*
Vic Parrish, CEO, Energy Northwest*



2. Battery Advances

Dr. Mark Duvall, Senior Project Manager, Electric Power Research Institute – Moderator*

Dr. John Miller, Maxwell Technologies*

Tim Murphy, Researcher, Idaho National Laboratory*

Rogelio Sullivan, U.S. Department of Energy*

3. Flex-Fuel Infrastructure Needs

Rich Feldman, Washington Coordinator, Apollo Alliance – Moderator*

Hon. Janéa Holmquist, Washington State Senate*

Hon. Erik Poulsen, Washington State Senate

4:45 p.m. Plug-In Auto Displays and Briefings

Steve Marshall, Cascadia Center*

Felix Kramer, Founder, California Cars Initiative*

Susan Fahnstock, The Green Car Company, Kirkland, WA*

Dr. Andrew Frank, Professor, University of California, Davis*

Ron Johnston-Rodriguez, Port of Chelan*

Steven Lough, Seattle Electric Vehicle Association*

Frank Ziegler II, Director of Sales and Distribution, Hybrid Technologies*

RECEPTION

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