

EACMA Financial Club

Feb 19, 2009

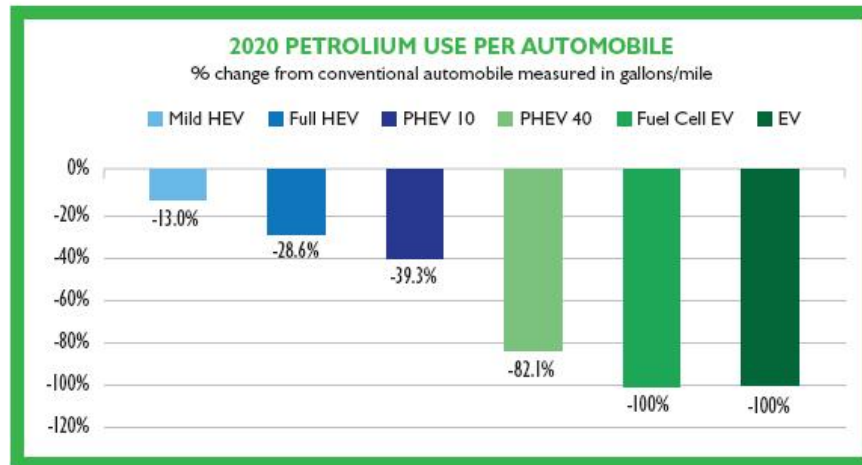
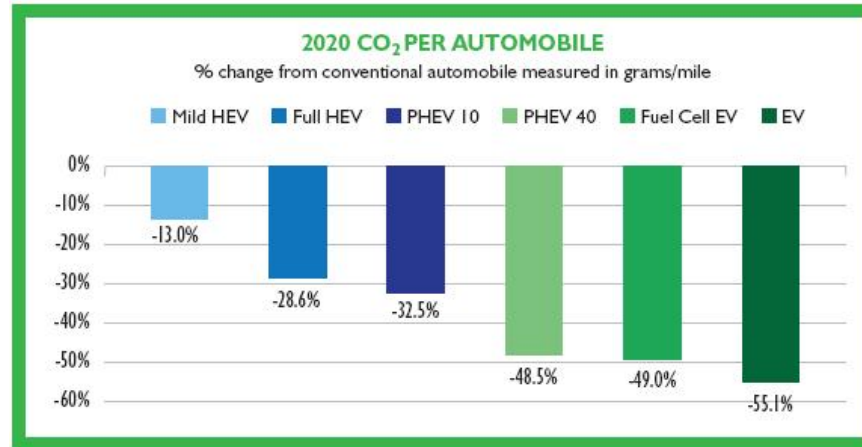
Electric Vehicle and Vehicle System
Developments

Electric Vehicle Developments

The Purpose Of This Talk

- A synopsis of the latest news on electric cars and the infrastructure required to make them practical.
- Identify the regions where they may be practical first.
- Identify the people and organizations that are promoting them.
- Provide the facts that will help you determine if these vehicles and systems make sense to you; either for investment, or for subsidy by federal or state governments

Benefits by Passenger Vehicle Type



The source of this data is a study by MIT for the US DOE.

EACMA Electric Vehicle Systems Overview

- <http://www.betterplace.com/>
- What is better place (4 minutes)
- <http://www.cbc.ca/thehour/videos.html?id=1006288241>
- Whatever type of energy Better Place is tapping, the organisation certainly has a lot of it in the business sense: since last year, it's unveiled initiatives for electric car networks in Israel, California, Hawaii, Australia and Ontario, Canada. Let's hope it can continue to muster such pluck in what looks to be an economically dour 2009.
- Denmark announcement (start at minute 24 – 6 minutes)
- <http://www.betterplace.com/press-room/videos-detail/b-roll-renault-megane/>
- <http://www.youtube.com/watch?v=kPLderC6XUQ> from minute 2
- <http://www.greenbang.com/103-million-euros-for-danish-electric-car-network/>
- <http://www.iht.com/articles/ap/2008/03/27/business/EU-FIN-Denmark-Electric-Cars.php>
- <http://gm-volt.com/2008/08/07/nissan-previews-its-electric-car-called-by-some-a-volt-fighter/>
- <http://www.greatcarstv.com/news/ford-looks-at-plug-hybrid-impact-on-power-grid.html>
- <http://www.teslamotors.com/>
- <http://www.greatcarstv.com/news/ontario-commits-to-build-electric-car-infrastructure-in-canada.html>
- http://www.theregister.co.uk/2008/11/21/san_francisco_better_place/
- <http://features.csmonitor.com/innovation/2009/01/22/worldwide-race-to-make-better-batteries/>
- <http://www.greatcarstv.com/news/ge-invests-in-electric-vehicle-producer-and-battery-manufacturer.html>
- <https://www.chryslerllc.com/en/innovation/envi/overview/>
- http://news.cnet.com/8301-17912_3-10140528-72.html?tag=mncol;txt
- <http://www.greatcarstv.com/news/chevrolet-volt-battery-packs-to-be-made-in-the-usa.html>
- <http://www.greatcarstv.com/news/fisker-karma-hits-the-test-track.html>
- <http://www.zapworld.com/>

Denmark's Electric Car Network Will Use Wind Power

- **COPENHAGEN, Denmark**, April 1, 2008 (ENS) - A Danish energy company and a Silicon Valley startup with Israeli links Thursday announced they will establish an electric car network in the Scandinavian nation with about 20,000 recharging stations powered by the wind.
- DONG Energy of Denmark and California-based Project Better Place said they will work together to build the US\$42.3 million project for a start date in 2011.
- Planning a mass deployment of electric cars, Project Better Place sports the motto, "How can we make the world a better place? One electric car at a time."
- The startup is headed by Israeli-American entrepreneur Shai Agassi, who says the Danish recharging stations will use power from DONG Energy's wind turbines. Most people will plug their cars in to charge overnight, at a time when wind turbines are spinning but demand for power is low.
- Denmark is the second country to embrace a Better Place electric car project - Israel was the first, announcing in January that it will have a electric car network powered by renewable energy.
- "We connect clean generation sources, through the grid, with car batteries - providing drivers with a better alternative to burning gasoline," wrote Agassi on his website.
- **The Renault-Nissan electric car that will serve as the backbone of the Danish electric car network is unveiled in Israel in January. (Photo courtesy Project Better Place)**
- "At the same time," said Eldrup, "we will achieve a new way of storing the unstable electricity output from wind turbines, as EVs are typically charged during the night, when the exploitation of power generation is low. This provides optimum exploitation of our resources for the benefit of the environment."
- In Copenhagen, the two organizations debuted Better Place Denmark, which will bring battery driven electric vehicles manufactured by Renault-Nissan to the streets of Denmark.
- Nissan, through its joint venture with NEC of Japan, has created an advanced lithium-ion battery pack that meets the requirements of the electric vehicle and will be mass produced for this project.
- "It is good to see that the efforts are now resulting in Denmark becoming the first European country where the electric car concept will be launched - and we look forward to following the development of a collaboration that potentially can benefit the Danish environment, Danish jobs and the Danish environmental profile abroad," said Frijs-Madsen.
- Today, both businesses are members of the Copenhagen Climate Council, a forum of business representatives, researchers and media persons from all parts of the world working on establishing a global agreement at the 2009 United Nations climate summit in Copenhagen and developing innovative solutions to climate challenges.
- While Agassi serves as CEO of Better Place, Idan Ofer, chairman of Israel Corp., serves as chairman of the board. The Palo Alto based company has secured a first round of funding in the amount of \$200 million with investments from Israel Corp., Morgan Stanley, VantagePoint Venture Partners, and a group of individual private investors managed by Michael Granoff, which includes former World Bank head James Wolfensohn.
- "Project Better Place offers a compelling business and environmental case for how to address global energy and transportation challenges. We now have 700 million cars driving on the world's roads, annually emitting 2.8 billion tons of CO2," said Ofer. "The tailpipe problem has always been the most challenging wedge of the climate change problem that humanity has to solve.
- "Under Shai's leadership, this project has the promise to stimulate the largest blue ocean economic opportunity in the history of capitalism," said Ofer, "with our children as its greatest beneficiary."
- Project Better Place will focus in phase one on establishing a repeatable framework and implementing electric recharge grids through local operating companies in multiple countries. The company is currently in discussions with various governments to establish more pilot sites.
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