North Sky
CAPITAL

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MARKET UPDATE

New Cars Available … Batteries Included

Every once in a while at North Sky we get to do something beyond the normal routine of research, meeting with companies or fund managers, or deciphering wind velocity test results and the like. A few weeks ago we got to drive a Fisker Karma – a $107,000 luxury Batmobile. For the uninitiated, the Karma is a four-door, four-passenger sporty daily driver…and it is a plug-in hybrid electric vehicle (PHEV) that can go 50 miles on battery power alone and another 200 miles using a gasoline-powered generator. You can drive across country in this car, without an extension cord. It does 0-60 MPH in 6 seconds, corners like an Indy Car and is strangely, magnificently silent. It instantly induces a big grin on anyone who buckles in and stomps on the gas pedal (electron pedal?). Driving the Karma was a blast. We had a similar experience in 2008 when we got to drive a traffic-stopping, sunburst orange Tesla Roadster in downtown San Francisco before the car was available to the general public. But that is another story.

2012 Fisker Karma

Anyway, we were impressed with the Karma despite a few first-generation quirks. Driving it also made us realize that the faster, lighter and roomier Tesla Model S that hits the streets in July is going to be every bit as incredible and at roughly half the price. The Tesla is a pure electric vehicle (EV), as opposed to a PHEV like the Karma which adds a combustion engine to power the battery or to turn the wheels. Many other EVs and PHEVs are now available to consumers, ranging from the affordable five-passenger Coda EV Sedan to large delivery trucks from Smith. More on this in a moment.

2012 Tesla Model S

Fun with Numbers

Last week, while researching electricity price trends for solar, wind, coal, fuel oil and natural gas, another thought struck us: It is cheaper to drive an EV today than a gas or diesel car—much cheaper.

Real world example:

- Fisker's Karma can go 50 miles purely on electricity
- It would cost $1.70 in Minnesota to charge the battery from empty to full
- So, it costs $1.70 to drive 50 miles—well within the average daily commute of the vast majority of Americans (78% of Americans commute 40 miles or less per day)
- One of us here at North Sky Capital drives an embarrassingly un-green Chevy Tahoe, which averages 13 miles per gallon
- Average cost of gas in Minnesota is $3.63
- To drive 50 miles in the Tahoe, it costs $13.96 (50miles /13 mpg * $3.63 per gallon) or nearly 8.2x as much as driving an EV like the Fisker Karma. If you drove 10,000 miles annually in Minnesota, the EV would cost $339 to power vs. $2,792 for the gasoline vehicle. As a result, the EV saves $2,453 annually—pretty impressive.

The average car on US roads gets 22 mpg today. The average cost of electricity and gasoline is $0.10 per kWh and $3.76 per gallon, respectively. Using these numbers, the gasoline car is 4.0x more expensive than an EV. Even if you drove a gas-sipping car that achieved 30 mpg, it would still be 3.0x more expensive to power than an EV. You can compare your car, using prices in your state, by going to our spreadsheet here.

Growing Multitude of EV Choices

Just like gasoline-powered cars, EVs and PHEVs come in a broad range of shapes, sizes and price ranges. There is a large and growing number of EV choices. Proof of this was in Motor Trend's 2012 new car issue, a review of all new models to be offered in 2012. Over 10% of the models were EVs, PHEVs or a model that offers buyers a choice between a regular combustion engine or some form of a hybrid drivetrain. Frost & Sullivan projects a global annual EV market of 1.2 million cars by 2015. Similarly, investment bank Jefferies predicts that 20% of new cars sold will be hybrids or EVs by 2020.

Below are just a few of the choices available to consumers today:

Make/Model	Drivetrain	Range (Electric)	Top Speed	Price before any subsidy (typically $7,500)	Photo
Brammo Empulse	EV	60mi	100mph	$9,995	
Toyota 2nd Gen RAV4 EV	EV (Tesla drivetrain)	100mi	TBA	~$25,000	
Mitsubishi i	EV	62mi	80mph	$29,125	
Toyota Plug-in Prius	PHEV	11mi (+ 490 miles using gas)	62mph	$32,000	
BMW i3	EV	90mi	93mph	$35,000	
Nissan LEAF	EV	73mi	90mph	$36,020	
Coda Automotive CODA Sedan	EV	125mi	85mph	$37,250	
Chevrolet Volt	PHEV	35mi (+340 using gas)	100mph	$39,995	
Ford Focus Electric	EV	76mi	84mph	$39,995	
Smith Electric Vehicles Edison	PHEV	100mi	50mph	~ $60,000	
Daimler Smart ED	EV (Tesla drivetrain)	84mi	62mph	$TBA	

Smith Electric Vehicles Newton EV	EV	150mi	50mph	~ $100,000	
Lightning Car Company GT	EV	150mi	125mph	~$300,000	

Other car companies that have an EV or PHEV nearing production include: Audi, Bentley, BYD, Chery, Citroën, Honda, Hyundai, Kia, Lexus, Mercedes, Nissan, Renault, Saab, Subaru, Suzuki, Tata, Volkswagen and Volvo.

Now, we could also take this opportunity to discuss the surge in production of natural gas-powered cars and trucks (e.g., did you know that 80% of the new vehicles to be purchased by Waste Management Inc. in 2012 will be natural gas powered?)…but, in the interest of brevity, we will leave that for a future Market Commentary.

Conclusion

For every 1 cent increase in the price of a gallon of gas, $1 billion less is spent elsewhere in the economy on consumer discretionary items. Gasoline prices are roughly $1 higher today than they were a year ago, meaning we are spending $100 billion more on gasoline today when we could instead be using that money to pay for food, housing, education, technology or healthcare.

EVs and PHEVs are available now in a variety of shapes, sizes and prices and that variety is expanding each year. As tensions ratchet up again in the Mideast and gas prices continue to rise, the demand for such vehicles (and their obvious appeal) increases. Demand is expected to rise further still as (1) the cost of EV batteries continues to fall due to economies of scale and technological advances, and (2) the prospect of vehicle owners generating their own (cheap) electricity from solar panels becomes widespread. It appears we very well could witness a transformation of the car industry this decade.

Impact Report Now Available

At North Sky Capital, our focus when making CleanTech investments has always been to generate a strong return for our clients. However, we recognize that many of our clients also measure investment performance through impact related metrics. To help investors quantify the positive changes their investments are making to the environment, we've published our inaugural ***Impact Report***. This report highlights the environmental effects of our investments as demonstrated within the context of reducing harmful emissions and intelligent resource utilization.

If you would like to receive a copy of the ***Impact Report***, please click here to submit your request.

Upcoming Events

We are regular speakers and attendees at key industry conferences. We hope to see you at these upcoming conferences:

April 16-18	FOX Wealth Advisor Forum, Coral Gables, FL www.foxexchange.com
April 23	BaseCamp SRI, Chicago www.basecampsri.com
April 24	LP-GP Forum: Clean Energy & Sustainability US 2012, New York http://www.lpgpforum.com/us/2012
May 2-4	US SIF Annual Conference, Washington, DC https://ussif.org
May 6-10	NCPERS Annual Conference, New York http://www.ncpers.org/Conferences/AnnualConference.php

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