EEVC NEWSLETTER

Published by the Eastern Electric Vehicle Club

Peter Cleaveland, Editor **Vol 27 No 7/8**
Club Address: P.O. Box 134, Valley Forge, PA 19481-0134 **JULY/AUGUST, 2007**
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FINAL RESULTS FROM THE 21st CENTURY AUTOMOTIVE CHALLENGE 2007

Electric Vehicle Event Summary

				Braking		Acceleration		AutoCross		Effic Mi/kWh		Effic Payload	
		1000 Pts Max		100 pts max		100 pts max		300 pts max		300 pts max		200 pts max	
Car #	Car Name	TOTAL SCORE	Position	Decel (m/s2)	Score	Accel (m/s2)	Score	Time (sec)	Score	Mi/ kWh	Score	MiLb-mph/Wh	Score
14	Lorax	**606**	**1**	8.80	97.0	2.5	45.2	31.5	113.0	4.6	251.6	47.8	98.9
56	StMarks	**413**	**5**	5.66	46.7	2.7	50.1	28.6	163.9	3.3	92.2	29.8	60.2
"007"	RabbitPickup	**418**	**4**	4.71	50.3	2.5	43.3	30.8	125.7	3.5	118.7	38.9	79.8
16	ElecTecs/Cinn	**601**	**2**	5.68	45.7	3.6	86.0	27.2	188.6	3.8	152.3	61.8	####
99	The Quiet Revolution	**518**	**3**	4.91	43.6	3.3	74.8	33.6	74.8	4.5	239.5	41.6	85.7

Braking Event

Car #	Car Name	Time (sec)	Calc MPH	ODO MPH	MPH Value	Brake Distance Feet	Speed M/s	Distance Meters	Decel m/sec2	Score	Best Score	Rank
14	Lorax	1.10	24.1	20	24.1	**21.6**	10.8	6.6	**8.80**	66.1	**97.0**	**1**
14	Lorax	1.16	22.5	20	22.5	**12.9**	10.0	3.9	**12.82**	92.3		
14	Lorax	1.15	22.7	20	22.7	**12.5**	10.2	3.8	**13.55**	97.0		
56	StMarks	1.40	17.8	25	17.8	**18.3**	8.0	5.6	**5.66**	45.6	**46.7**	**3**
56	StMarks	1.10	24.1		24.1	**32.6**	10.8	9.9	**5.83**	46.7		
56	StMarks	1.32	19.1	26	19.1	**27.1**	8.5	8.3	**4.42**	37.5		
"007"	RabbitPickup	1.40	17.8	20	17.8	**22.0**	8.0	6.7	**4.71**	39.4	**50.3**	**2**
"007"	RabbitPickup	1.10	24.1	25	24.1	**29.8**	10.8	9.1	**6.38**	50.3		
"007"	RabbitPickup	1.40	17.8	30	17.8	**41.0**	8.0	12.5	**2.53**	25.2		
16	ElecTecs/Cinn	1.10	24.1	20	24.1	**33.4**	10.8	10.2	**5.68**	45.7	**45.7**	**4**
16	ElecTecs/Cinn	1.40	17.8	20	17.8	**24.5**	8.0	7.5	**4.23**	36.3		
16	ElecTecs/Cinn	1.32	19.1	20	19.1	**21.2**	8.5	6.5	**5.66**	45.6		
99	The Quiet Revolution	1.27	20.1	20	20.1	**26.8**	9.0	8.2	**4.91**	40.7	**43.6**	**5**
99	The Quiet Revolution	1.26	20.3	20	20.3	**29.3**	9.1	8.9	**4.58**	38.6		
99	The Quiet Revolution	1.27	20.1	20	20.1	**24.7**	9.0	7.5	**5.34**	43.6		

BrakeBest	14.0	**m/sec2**	Accel=Vo^2/2X			**Max**	**13.55**	**97.0**
BrakeWorst	2.5	**m/sec2**				**Min**	**2.53**	**25.2**
BrakeValRange	11.5	**m/sec2**						
			Timed Dist	30.0	**feet**			
BrakeMaxScore	100.0	**Points**	**FeetPerMeter**	3.3	**Feet**			
BrakeMinScore	25.0	**Points**	**MPH2M_S**	0.4	**factor**			
BrakePointRange	75.0	**Points**	**Toffset**	0.3	**Secs**			

Acceleration Event

Car #	Car Name	Time1 (sec)	Time2 (sec)	Time3 (sec)	Best Time	Calc MPH	Accel m/s2	Score	Rank
14	Lorax	4.90	5.6	5.5	**4.90**	27.8	**2.54**	**45.2**	**4**
56	StMarks	4.78	4.83	5	**4.78**	28.5	**2.67**	**50.1**	**3**
"007"	RabbitPickup	4.95	5.7	6.4	**4.95**	27.5	**2.49**	**43.3**	**5**
16	ElecTecs/Cinn	4.10	4.3	4.5	**4.10**	33.3	**3.63**	**86.0**	**1**
99	The Quiet Revolution	4.28	5.4	5.49	**4.28**	31.9	**3.33**	**74.8**	**2**

AccelBest	4.0	**m/sec2**	a=Vf^2/2x			
AccelWorst	2.0	**m/sec2**				
AccelValRange	2.0	**m/sec2**				
AccelMaxScore	100.0	**Points**	**Accel Distance**	100.0	**feet**	
AccelMinScore	25.0	**Points**	**FtperMeter**	3.3	**Feet**	
AccelPointRange	75.0	**Points**	**MPH2MS**	0.4	**factor**	

Autocross Event

Car #	Car Name	Time 1 (sec)	Time 2 (sec)	Time 3 (sec)	Time 4 (sec)	Best Time	Score	Rank	Notes
ELECTRICS									
14	Lorax	41.80	34.7	32.13	31.47	**31.47**	**113.0**	**4**	
56	StMarks	29.44	28.6	33.40	37.70	**28.62**	**163.9**	**2**	*run 4 one cone*
"007"	RabbitPickup	33.23	31.6	30.81	30.76	**30.76**	**125.7**	**3**	
16	ElecTecs/Cinn	28.34	32.4	28.23	27.24	**27.24**	**188.6**	**1**	
99	The Quiet Revolution	Off Course	Off Cours	Off Course	33.61	**33.61**	**74.8**	**5**	
HYBRIDS									
21	Philly Green	24.17	23.7	23.18	25.23	**23.18**	**261.1**	**2**	*run 4 one cone*
22	Philly Red	23.18	22.2	22.19	21.31	**21.31**	**294.5**	**1**	
31	hobbit	32.73	57.9			**32.73**	**90.5**	**4**	*2nd run battery only*
65	VW TDI	23.50	23.2	23.45	26.16	**23.20**	**260.7**	**3**	

AutoXBest	21.0	**sec**	**AutoXMaxScore**	300.0	**Points**	**"lower is better"**
AutoXWorst	35.0	**sec**	**AutoXMinScore**	50.0	**Points**	
AutoXValRange	14.0	**sec**	**AutoXPointRange**	250.0	**Points**	

Efficiency Event

Index	Car #	Car Name	Start Time	End Time	DeltaT Hours	Odo Start	Odo End	Odo Miles	Value Used	Vav	Iav
1	14	Lorax	13:55:01	14:10:12	0.25	84.2	90.6	6.4	6.4	178.60	30.70
2	56	StMarks	14:38:11	14:55:55	0.30	63.5	70.0	6.5	6.4	146.80	44.20
3	"007"	RabbitPickup	15:52:07	16:06:50	0.25	38.0	43.9	5.9	6.4	120.50	61.00
4	16	ElecTecs/Cinn	17:41:00	17:53:00	0.20	596.1	602.3	6.2	6.4	138.30	60.60
5	99	The Quiet Revolution	17:00:00	17:17:07	0.29	-	-	-	6.4	118.00	42.10

Efficiency

Index	Car #	Car Name	Pav	Energy kWh	Effic MI/kWh	Effic Wh/MIle	Effic Score	Rank	Vmax	Vmin
1	14	Lorax	5.48	1.39	**4.61**	**216.8**	**251.6**	**1**	216.40	163.20
2	56	StMarks	6.49	1.92	**3.34**	**299.6**	**92.2**	**5**	152.40	131.60
3	"007"	RabbitPickup	7.35	1.80	**3.55**	**281.7**	**118.7**	**4**	126.00	107.00
4	16	ElecTecs/Cinn	8.38	1.68	**3.82**	**261.9**	**152.3**	**3**	148.00	117.20
5	99	The Quiet Revolution	4.97	1.42	**4.52**	**221.4**	**239.5**	**2**	125.20	

Efficiency

Index	Car #	Car Name	Payload Lbs	Calc MPH	Pay. Ind. All25MPH	Payload Index MI-Lb-MPH/Wh	Payload Score	Rank	Imax	Imin
1	14	Lorax	410	25.3	47.3	**47.8**	**98.9**	**2**	122.40	-70.00
2	56	StMarks	412	21.7	34.4	**29.8**	**60.2**	**5**	239.20	-7.20
3	"007"	RabbitPickup	420	26.1	37.3	**38.9**	**79.8**	**4**	278.80	1.20
4	16	ElecTecs/Cinn	506	32.0	48.3	**61.8**	**128.9**	**1**	362.80	4.00
5	99	The Quiet Revolution	411	22.4	46.4	**41.6**	**85.7**	**3**	182.40	-2.40

Higher is better"			**Higher is better"**		
EfficBest	5.0	**MI/kWh**	**PayloadBest**	100.0	**Index**
EfficWorst	3.0	**Mi/kWh**	**PayloadWorst**	25.0	**Index**
EfficValRange	2.0	**Mi/kWh**	**PayloadValRange**	70.0	**Index**
EfficMaxScore	300.0	**Points**	**PayloadMaxScore**	200.0	**Points**
EfficMinScore	50.0	**Points**	**PayloadMinScore**	50.0	**Points**
EfficPointRange	250.0	**Points**	**PayloadPointRang**	150.0	**Points**

21ST CENTURY AUTOMOTIVE CHALLENGE: "A SUCCESS!"

Oliver Perry

The last few weeks, up to and including the June 9-10th 21st Century Automotive Challenge event, went like the downhill portion of a roller coaster ride. Thanks to the rescue efforts of the NESEA (Northeast Sustainable Energy Association, former American Tour de Sol) volunteers, the event happened, and it happened well. Yes, there were some glitches, tense moments, and even some heated controversy, but overall the event was rated a success by the volunteers, participants, and guests.

In the months to come we will revisit the Challenge in this newsletter to present details impossible to document accurately in one issue. There will be more pictures and Challenge (Tour) accounts of what happened before, during, and after the two day event. As always there were some great human interest stories that should be shared. Unfortunately demands upon my time have prevented me from gathering all of the information and assembling it in accurate printable form. It will take considerable time and energy to approach the level of documentation accountability that the NESEA American Tour de Sol historically has been known for. One needs a single minded reporter with no other responsibility than to accumulate facts, pictures, and associated information, in order to do this job right. Unfortunately we do not have such a person on board at this time.

Special Recognition

Please submit corrections and omissions to us. In order to present the following information while it is reasonably fresh I am winging it off the top of my head.

Ambrose Spencer headed up the NESEA volunteers, and received a special NESEA Volunteer Award sponsored by NESEA. Paul Kydd likewise received a Volunteer Award for his part in initiating the event, especially the "Drive to the Shore" component.

Nancy Hazard addressed our event at the Saturday Evening Awards Buffet. Nancy presented a slide show describing a brief history of the Tour de Sol from its beginning to the present. Rob Wills, the Technical Director of the Tour de Sol, devoted his time and energy to providing our event with the typical spread sheet technical scoring. Both Rob and Nancy were both presented special awards for distinguished service to the American Tour de Sol for 19 consecutive years.

Ed Kriebick and Ron Groening presented Methacton High School a special award in honor of Guy Davis for advancing battery powered cars. The instructor, Steve Savitz, of the Methacton High School electric car team (representing the three wheeled vehicle the Lorax, donated to Methacton High by EEVC member John Murphy), was presented the distinguished "Bradford Teacher" award by former award winners Ken Wells of St. Marks School, and Simon Hauger, from West Philadelphia High School.

The Competitive Results

There were two major divisions of vehicle competition; the battery electric and the hybrid "Drive to the Shore!" The specific results, technical achievements, and scores were made possible by Dr. Robert Wills, the technical director for the American Tour de Sol from its inception to the present, (counting this year nineteen consecutive years). Rob volunteered his time to help with scoring, accumulating data, and printing our spread sheet results. Most of Rob's work was done on behalf of the battery powered car competition.

Battery Electric

Awards were presented in the Battery Powered Vehicle Category for Best Acceleration, Best Autocross, Best Technical Inspection Score, Best Efficiency Equation Results, and Over-all Best Electric Vehicle.

The Lorax, the three wheel green machine from Methacton High School, won the overall top battery powered car award, narrowly beating out The Olympian.

The Olympian, originally from Cinnaminson and now from BCIT, the 2006 Winner of the American Tour de Sol Battery Powered Car Division, won three of the five awards: First in acceleration, autocross, and the payload efficiency loop. (The efficiency loop was set up to gather data for an efficiency equation that considered payload and speed in determining overall efficiency.)

Alan Arrison, long time EEVC member from South Jersey, won the best technical

inspection award with his recently converted Volkswagen pickup truck. In the words of Spencer Ambrose, one of the NESEA volunteers responsible for the inspection, Alan's conversion was impeccably done, and demonstrated electrical neatness and professional elegance.

A converted pick up truck from a BOCES vocational School in Goshen, New York, instructor Mr. John Dolan, received a "Tour Spirit" award for the best First Time team entry.

The St. Marks team from New England, advised by Ken Wells, whose father is the director of the Boyertown Museum, entered two vehicles, a bio-diesel VW Jetta and a solar assisted battery powered pickup truck. The St. Marks team demonstrated fossil free energy from both solar panels and a wind generator. For their impressive overall efforts St Marks was awarded the "Tour Spirit Award for the best returning team."

Drive to the Shore

EEVC member, Meredith Murphy, had the over-all best performance in the Drive to the Shore hybrid category with her Honda Insight.

Al Walker, commonly known as the Hobbit, a Prius owner from New England who specializes in teaching the technical aspects of the Prius, won first place for best performance in the Prius category. Nancy Hazard placed second, and James Natale from Cinnaminson, New Jersey (former physics student of mine from the 70s era) placed third in the Prius category.

EEVC member Ron Groening and his wife placed first in the diesel category with their Volkswagen Jetta.

Tom Houck, an electronics professor from Burlington County College, placed first place in the normal gasoline car division with his old Honda Civic. With careful driving he averaged over 30 miles to the gallon.

If memory serves me correctly West Philadelphia High school won the Best Bio Diesel efficiency. (If memory does not serve me correctly you will see a correction next issue.) West Philadelphia entered two biodiesel cars.

Other Awards

The best over-all autocross performance award, the autocross champion, was West Philadelphia High School's widely publicized bio diesel sports car, the Hybrid Attack.

The best car on display, the prestigious "Crowd Pleaser!" or People's Choice went to the West Philadelphia High School.

The Best Team Presentation for both slide presentations at the Saturday Evening Awards Buffet and the Sunday Earth Fair display went to St. Marks School from New England. The students made a presentation that illustrated how their fossil free transportation system practically works. Methacton High School placed a close second and West Philadelphia High School placed third.

Summation

Further details of each award and award winner would be of interest to many of you. We have been unable at this time to find the time and space to provide more than this quick, to the point summation. As mentioned in the beginning, we could use a reporter with more time than I currently have. Anyone wishing to add to our coverage is most welcome to do so. I hope that we can encourage some of our participants to write an article, and/or include a few pictures to supplement the account of the competition from their perspectives, for one of our future newsletters.

A USER'S EXPERIENCE
Jesse Rudavsky

I would like to share some of my experiences with my 2002 Toyota Prius I have been driving for the last 3.5 years.

In November of 2002, when I was 18, I purchased a 2000 five-speed Honda Insight. I bought that car for a ridiculously low price of $12,500 off a used car lot with only 13 k miles. Heck, they even threw in the $800 CD changer for free!

Gas was under $1.50 back then and people were not interested in a 2 seater that would only do 113 mph even though it would get 70 mpg plus The car had been sitting on that lot for nearly six months and the guy wanted it to disappear. Anyway, the Insight was a great car for me and I drove it trouble-free until 71,000 miles when I saw another deal I could not refuse.

I found my current 2002 Prius-I listed on

line for $10,000 with 84,000 miles. Gas was $1.70 on that fateful day in March of 2004. At $3200 below book value I decided it was time for a change and snatched it up. Many of my friends thought I was crazy to take a gamble on a used hybrid with that many miles. Nearly 3.5 years and 224,000 miles of my own later, my Prius is still running strong with her accumulated 310,000 miles and counting. I recent

ly drove out to Wisconsin for Hybridfest 2007 and down to Alabama afterwards to visit friends. Her fuel economy is still as good as day one. I am not much of a hypermiler but I recently pushed the car up to 100 mph for a few seconds in rural Mississippi and she didn't even flinch.

I have taken my car everywhere including eight separate trips to Florida, several trips out West and even to Alaska and back in the sum

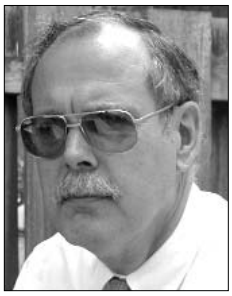
mer of 2005. She has also conquered Mt. Washington and Mt. Evans in Colorado at 14,258 ft. last summer. She has also experienced 117 degree heat while running MAX A/C at 80 plus mph cruising though the southern California desert last summer. The car did not overheat and I was kept very comfortable.

As new or used automobiles go, I highly recommend hybrids of all types and especially the Prius to everyone. In the late fall of 2004, my father joined the club and purchased a 2005 HCH-I with a CVT. He is very happy with his car 55,000 miles later as well!

About the author

Jesse Rudavsky was born and raised in Hingham MA, where he still lives. He is 23 years old and drives a tractor trailer for a living; he chases severe weather as a hobby.

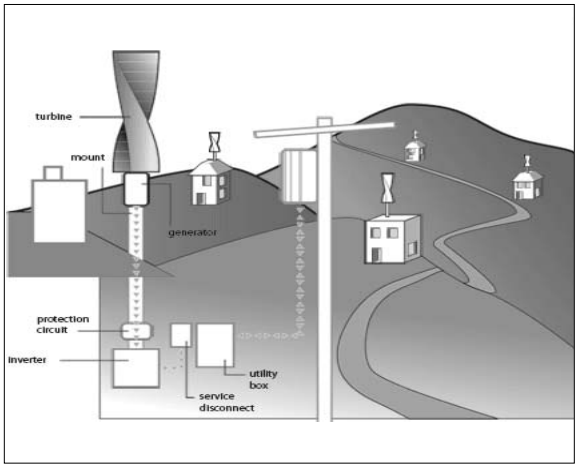
WEIRDNESS PERSISTS IN SAN FRANCISCO
By California Pete



Say what you will about San Francisco and the Bay area, it doesn't lack for strangeness. The latest "tragedy" in these parts has been the death of a guy named Jim Mitchell. Mitchell was a pioneer in a field that has become associated with the City by the Bay: Pornography, and he rated heavy coverage in the local section of the *San Francisco Chronicle*. Mitchell was the owner of the best-known local dirty-film theatre, as well as producer of several films that were considered classics in their genre (as well as a bunch more they don't talk about in family newspapers). The locals seem to think of him as a treasure, or maybe the embodiment of something; what, I don't care to speculate about.

Now as someone who spent several decades in the Philadelphia area I understand the nostalgia that swept the Delaware Valley when the old Troc burlesque house closed, but this is a bit much.

In more respectable news, San Francisco-based renewable energy start-up Blue Green Pacific, Inc. (www.bluegreenpacific.com) has designed and deployed what they call the first residential wind energy system designed for the consumer.



Unlike more familiar turbines, the Blue Green Pacific unit has a vertical axis (see picture) and produces only about 500 W; not

enough to power a house but enough to cut the electric bill significantly (and to qualify for a $1500 federal rebate), especially if you live in a windy area. And, says the manufacturer, it can be used in congested areas. Estimates are that a system costing $5000 would pay for itself in eight to eleven years.

Elsewhere on the renewable-energy front, another San Francisco company, Cleantech America LLC, has announced an agreement to with Kings River Conservation District (KRCD) to provide up to 80 MW of peak solar power to the recently formed San Joaquin Valley Power Authority (SJVPA).

Upon full build-out, KRCD's Community Choice Solar Farm would be the nation's largest utility-scale photovoltaic facility.

The memorandum of understanding calls for the facility to be developed in phases of 10 megawatts in 2009, 30 megawatts in 2010 and 40 megawatts in 2011, for a total of 80 MW. Currently the largest announced facility in the U.S. is a 15 MW solar plant at Nellis Air Force Base in Nevada.

Cleantech America has also announced an agreement with PG&E for a 5 MW solar farm, CalRENEW-1, which also will be located in Fresno County, and will be the third largest photovoltaic facility in the country and the largest in California.

The idea of sustainability has even spread to that bastion of conspicuous consumption, Palm Desert. Long known for its green golf courses, swimming pools and air-conditioned everything, this playground for the affluent has become environmentally conscious, according to the *Chronicle*. Under a plan to to reduce energy use by 30 percent over the next five years (and funded by $14 million from the PUC) it has banned drive-through windows at fast-food restaurants, switched to fuel cell-powered buses, advocated the use of golf carts for short commutes, and is requiring developers "to prepare new structures for future solar panels and construct buildings that are 10 percent to 15 percent more energy-efficient," and to use drought-tolerant plants in front yards. And the drought-resistant plant idea even extends to the city's golf courses.

It has even installed solar panels at City Hall.

NEWS UPDATE

Ford to test PHEVs, expects to produce them in 5-10 years

On July 9 CNN Money reported that Ford has announced that it will test a fleet of up to 20 rechargeable hybrids with Southern California Edison, and expects the company to sell plug-in hybrids in five to 10 years.

The main impediment, CNN quotes Ford CEO Alan Mulally as saying, is advancements in lithium ion batteries.

In the test program Ford will supply 2008 Ford Escape Hybrid SUVs that would be converted to PHEVs "in cooperation with a battery company partner yet to be named."

Chrysler seeking greenhouse gas cuts

A June 27 Reuters story reported that Chrysler Group has joined the United States Climate Action Partnership, a group of U.S. companies and environmental organizations that have called on the federal government to enact laws that will help reduce greenhouse gas emissions. Other members of the include Alcoa, GE and DuPont.

Fuel cell lift trucks gaining popularity

The current issue of *Food Manufacturing* has an article on the use of hydrogen fuel cells to replace the familiar lead-acid batteries in industrial lift trucks. While lead-acid batteries are reliable (and provide a handy counterweight), the article points out, they only last one shift and must be swapped out for charging and cooling if the truck is used for three shifts. Fuel cells, on the other hands, can be filled quickly.

More biofuels in Berkeley

Several months ago it was reported that BP was funding a major biofuels research project at UC Berkeley; now the *San Francisco Chronicle* for June 27 reports that the U.S. Department of Energy will be funding another project there to the tune of $125 million over five years. To be called the Joint BioEnergy Institute, it will be led by Lawrence Berkeley National Laboratory with participation by UC Davis, Stanford, Lawrence Livermore National Laboratory and Sandia National Laboratories, and will study ways to produce fuels from plant fiber material — specifically, cellulosic

ethanol.

The center will have four divisions: one to research new plants, one to search for enzymes to convert plant cellulose into sugars, one to develop biofuels, and one to support the other three.

Methane hydrate in China

The Chinese *People's Daily* reported on June 6 that the China Geological Survey (CGS) had succeeded in collecting gas hydrate samples from the northern part of the South China Sea. Methane hydrate is a solid combination of naturally-occurring methane with water that forms at sea-floor pressures and low temperatures, and releases the gas when warmed. The potential volume of gas hydrates around continental slopes in the area has been estimated to exceed 100 million tons of oil equivalent, with the solid material yielding 164 times its volume in gas. The amount of hydrate around the world, says the article, "roughly doubles the volume of all known coal, oil and natural gas reserves, which will be used up in about 70 years.'

Google backs EVs, PHEVs with $$

On June 19 CNN Money reported that Google plans to award $1million in grants towards the development of electric vehicles and offering ten times that much for development of plug-in hybrids. The RechargeIT initiative also aims at developing vehicle-to-grid (V2G) technology, which enables PHEV owners to sell power to the grid in times of heavy demand.

Claims that GM plans to build 60,000 Chevy Volts

A *Bloomberg News* story by Jeff Green dated August 22 claims that General Motors plans to put the Chevy Volt PHEV into production in 2010, and to build 60,000 that year, at a price of less than $30,000.

GM announced on August 9 that it had signed an agreement with A123 Systems Inc. (Watertown, MA), a maker of nanophosphate lithium-ion batteries for use in cordless power tools, to produce larger cells for automotive applications. An AP story says that cells are expected to be ready for testing by October, but points out that Toyota has backed away from lithium for the Prius and gone back to Ni-MH, citing safety concerns.

A Marketwatch story dated August 8 says that Toyota had pushed back the introduction of the lithium Prius to a date variously given as 2009 or 2011.

EVA-DC president Dave Goldstein, who sent the item along, adds "Battery expert and industry consultant Menahem Anderman calls the 60,000 vehicle claim 'totally ridiculous at this point.' I tend to agree."

ZAP moving ahead

California-based ZAP has announced progress on both supply and demand fronts. On the demand side, the company reports that it has received a $1 million order from Vancouver, BC-based distributor New Fuel Systems Inc. Under the agreement, New Fuel Systems has agreed to the initial purchase of $1 million worth of ZAP electric vehicles, including ZAP electric cars, trucks, mopeds, scooters and other electric vehicles. New Fuel Systems plans to open retail locations throughout Canada and showcase electric transportation during the 2010 Winter Olympics being planned for Whistler, British Columbia.

On the supply side, the company announced on August 13 that it was nearing completion of a factory in the Shandong Province of China will have the capacity to produce up to 4000 cars per month. The company already has one factory in China with a capacity of up to 1000 vehicles a month, and company officials say they have delivered more than 600 electric cars and trucks since they were introduced in June of 2006.

Another China-made EV entry?

A story in *CNET News.com* dated August 10 reports that Malibu, CA-based Miles Automotive Group, which has been selling low-speed EVs (top speed 25 mph, with ranges up to about 70 miles), is planing to introduce a mid-size sedan to be called the Javlon with a top speed of 80 mph and a range of 120 miles from a lithium battery. Cars are expected in 2008.

Solar cell reaches 42.8 % efficiency

On July 23 the University of Delaware UD Daily reported that a UD-led team had achieved a combined solar cell efficiency of 42.8 percent from sunlight at standard terres-

trial conditions, handily besting the previous record of 40.7 percent and a step closer to the 50 percent efficiency goal set by the Defense Advanced Research Projects Agency (DARPA). Working with approximately $13 million in funding for the initial phases of the DARPA Very High Efficiency Solar Cell (VHESC), the consortium, consisting of UD and DuPont, developed a system using high-efficiency concentrating spectral-splitting optics that direct light of different wavelengths to different cells made of different materials. The program will now move into further development, with the eventual goal of producing cells that can reduce the weight of batteries today's soldiers must carry into battle.

According to CNN the Department of Defense is offering a $1 million prize to anyone who can develop a wearable power pack that weighs less that 4 kg (8.8 lb) and will provide an average of 20 watts over 96 hours. Soldiers typically carry 20 to 40 lbs of batteries, which actually weigh more than their ammunition.

The contest registration deadline is November 30, 2007.

Toyota to road test plug-in Prius

Autoblog Green reported on July 25 that Toyota Motor Co. has received permission from the Japanese Ministry of Land, Infrastructure and Transport to road test a PHEV. Word has it that the company is increasing the size of the car's Ni-MH battery, rather than going to a lithium battery, and is currently getting an electric-only range of about 8 miles. Considering that there are Prius conversions available today with EV ranges of 32 miles (see www.eaa-phev.org/wiki/Prius_PHEV #Kits_and_Conversions) that seems a little short, but it's a start.

Teslas to be available by year's end

On August 8 *CNN Money* reported that Tesla Motors will begin delivering its fist cars by October or November. The company Web site still quotes July 2008 for delivery for premium orders received now, but apparently vehicles will be available earlier.

COMING EVENTS

Duryea Day #42
Sept. 1, Boyertown, PA. Call 610-367-2090 or go to www.boyertownmuseum.org.

AltWheels Transportation Festival
September 28 - October 1, Boston, MA. o to http://www.altwheels.org.

Panasonic World Solar Challenge
October 21-28, Australia. Call 61 8 8463 4500 or go to www.wsc.org.au

Michelin Challenge Bibendum 2007
Shanghai, Nov 14-17. Contact mail.challenge-bibendum@fr.michelin.com, www.challenge-bibendum.com

EVS 23: Sustainability: The Future of Transportation
Dec 2nd - 5th, Anaheim, CA. For information go to www.electricdrive.org/evs23.

2008 Hybrid Vehicle Technologies Symposium
February 13-14, 2008, San Diego, CA. Go to http://www.sae.org/events/training/symposia/hybrid/ or call 202-463-7319.

2008 Clean Heavy Duty Vehicle Conference
February 20-22, 2008, San Diego, CA. Go to http://www.calstart.org/programs/chdvc/ or call 626-744-5600.

2008 SAE World Congress
April 14-17, Detroit, MI. Go to http://www.sae.org/congress/ or call 626-744-5600.

Convergence 2008
October 20-22, 2008, Detroit, MI. Go to http://www.sae.org/events/convergence/ or call 626-744-5600.

MEETING SCHEDULE

Meetings are held in Room 49, Plymouth-Whitemarsh High School, 201 East Germantown Pike in Plymouth Meeting, PA, and begin at 7:00 p.m.

September 12

October 10

November 14

December 12

January 9

February 13