

*SUMMER 2005*

# *EVAmerica*

*COMMITTED TO QUALITY, SERVICE, AND SAFETY*



*ELECTRIC TUG (EVA COMPONENTS) – BANGOR INTERNATIONAL AIRPORT*

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*Summer 2005  
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## ***THE TIME IS NOW !!***

*In the last issue, we showed Hubbert's Curve which predicted that oil production would peak between 2004 and 2009. Oil prices will continue to rise because it is simple economics – Supply vs Demand. In this issue we look at the economics of conversions. For years I have stated that EV Conversions are for the hobbyists who want to learn and play; but they are not everyone. And like most hobbies, they cost money. A few years ago after 9-11, gasoline was \$1.25/ gal there was more supply than demand. Now with gasoline at \$2-\$3/ gal, the economics have changed.*

*In January, we presented our ideas to Congressman Bass's office (NH-R). We stated that the only way to jump start the battery industry was to allow a tax credit for conversions. With a \$4000 tax credit, the hobbyist reduces his cost substantially. The goal is 100,000 EV conversions! That will create the demand for better batteries while reducing our demand for oil and cleaning the air we breathe.*

*During the last six month EVA has become a part of a number of exciting EV projects. We are working with a number of customers building not only Electric Boats but also upgrading Sailboat auxiliaries (Atomic 4, Yanmar, etc.) to electric drives. RTC Machine has developed the FirstMate Auxiliary Drive System using our components. We are just starting to market it – pretty exciting! Sailors want clean air and quiet – that is the benefit of electric drive. The FirstMate System was developed for sailboat auxiliaries in the 25-35 ft range to be a drop in system that could be installed by in a weekend.*

*We have been truly blessed with some great industrial customers. One major customer uses our product in diesel electric locomotives. During the last few months we have been involved in a number of rail vehicles. Our largest one was a 150 ton rail vehicle for Finkl & Sons in Chicago. They move steel ingots. We have also done smaller 50 ton rail vehicles and even smaller hobbyists rail vehicles. Sorry – no pictures yet!*

*We have enclosed a number of pictures from Customers! I thank them for sharing. In addition, a number of customers have been in local papers, and one customer will be in the New York Times!*

*We hope everyone likes our EVAmerica Newsletter via email. This issue is 12 pages- certainly much bigger and hopefully better. Feel free to forward to friends!*

*Bob Batson  
Electric Vehicles of America, Inc.*

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*EVA has given \$5071 in EVAmerica Discounts thru July 1, 2005!  
Just part of EVA's Customer Service!*

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### ***REMINDER !***

*Members of EVAmerica are entitled to a 10 percent discount on EVA components up to a total discount of \$30 each quarter. Simply remind us when you place your order. A 1-year membership is automatic when you buy \$300 or more in a single order or pay \$30 for membership.*

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# ***EVs – CONVERSION ECONOMICS***

*By*

*Bob Batson*

***Electric Vehicles of America, Inc.***

*Electric Vehicles (EVs) are the future! My research indicated that 18 years ago before I started Electric Vehicles of America, Inc (EVA). It still indicates it today.*

## Assumptions

*Let's start with just the vehicle costs. Our basic assumptions were comparing a used gasoline vehicle to a conversion. The gasoline vehicle was assumed to be about 3 years old with about 40,000 miles, so it depreciated to about 60% of its original cost. The used electric vehicle was an older gasoline vehicle with about 100,000 miles. The vehicle has more miles on it, but most of the internal combustion parts were going to be removed anyway. We even made the Electric Commuter and the electric Truck vehicle costs high. Most of our customers spend a lot less for their vehicles – but we want to look at worst case.*

<b>Parameter</b>	<b>Used Gasoline Commuter</b>	<b>Used Electric Commuter</b>	<b>Used Gasoline Truck</b>	<b>Used Electric Truck</b>
Vehicle, less battery				
Price (Used)	\$12,000.00	\$3,000.00	\$15,000.00	\$6,000.00
Life / miles	10000	10000	20000	20000
Use (miles/ year)	5000	5000	10000	10000
Life, years	2	2	2	2
Salvage Value	\$8,000.00	\$2,000.00	\$10,000.00	\$4,000.00
Cost/ Mile	\$0.40	\$0.10	\$0.25	\$0.10
Conversion Cost				
Price		\$6,000.00		\$8,000.00
Life / miles		10000		20000
Use (miles/ year)		5000		10000
Life, years		2		2
Salvage Value		\$4,000.00		\$5,500.00
Cost/ Mile		\$0.20		\$0.13
Vehicle Summary				
Initial Cost	\$12,000.00	\$9,000.00	\$15,000.00	\$14,000.00
Salvage Value	\$8,000.00	\$6,000.00	\$10,000.00	\$9,500.00
Cost /mile	\$0.40	\$0.30	\$0.25	\$0.23
Vehicle Summary (with Tax Credits)				
Federal Tax Credit		\$4,000.00		\$4,000.00
State Tax Credit		\$0.00		\$0.00
Initial Cost		\$5,000.00		\$10,000.00
Salvage Value		\$6,000.00		\$9,500.00
Cost /mile		(\$0.10)		\$0.03

## *EV – CONVERSION ECONOMICS (Continued)*

*We assumed the commuter is used only 5,000 miles a year; the equivalent of commuting 25 miles a day to work or to the train station. The truck is assumed to be used more – 10,000 miles per year.*

*After 2 years, we assumed that all of the vehicles had lost 30 percent of their value. We also assumed that the EV components had also lost 30 percent of their value.*

Parameter	Used	Used	Used	Used
	Gasoline Commuter	Electric Commuter	Gasoline Truck	Electric Truck
Battery Cost				
Price		\$1,000.00		\$2,000.00
Life / miles		10000		20000
Use (miles/ year)		5000		10000
Life, years		2		2
Salvage Value		\$0.00		\$0.00
Cost/ Mile		\$0.10		\$0.10
Fuel use				
miles/gal	20		16	
\$/gal	\$2.50		\$2.50	
Fuel Cost/ mile	\$0.13		\$0.16	
miles/ kw-hr		3		2
\$/ kw-hr		\$0.10		\$0.10
Fuel Cost/ mile		\$0.03		\$0.05
Summary (without tax credits)				
Vehicle cost	\$0.40	\$0.30	\$0.25	\$0.23
Fuel Cost	\$0.13	\$0.13	\$0.16	\$0.15
Life Cycle Cost/ Mile	\$0.53	\$0.43	\$0.41	\$0.38
Summary (with tax credits)				
Vehicle cost	\$0.40	(\$0.10)	\$0.25	\$0.03
Fuel Cost (\$2.50/gal)	\$0.13	\$0.13	\$0.16	\$0.15
Life Cycle Cost/ Mile	\$0.53	\$0.03	\$0.41	\$0.18
Savings (\$)/ mile		\$0.50		\$0.23
per Year		\$2,500.00		\$2,300.00
5 years		\$12,500.00		\$11,500.00

## ***EV – CONVERSION ECONOMICS (Continued)***

### *Conclusions*

*I must admit that even I was surprised by the savings! Without the tax credit, the commuter vehicle saves \$0.10/mile. I agree that is only \$500. But we did not even consider the cost of tune-ups, oil changes, exhaust system replacement, and cooling system repairs associated with the gasoline vehicle. When you consider the tax credit, the savings is substantial! \$0.50/mile ! At \$6000 to convert with a \$4000 tax credit, the savings pays for the conversion in less than 1 year!*

*The Electric Truck is not as economical. It savings is only \$0.23/mile at \$2.50/gal for gasoline. But at 10,000 miles per year those numbers represent \$1,000 and \$2300 per year savings!*

*There are many other benefits to EV conversions, including:*

- *EV conversions are the ultimate in recycling. You are taking a vehicle and recycling its use.*
- *The EV minimizes air pollution. Each gasoline vehicle put out its weight in pollutants annually!*
- *EVs eliminate the need for oil changes.*
- *EVs do not have a cooling system – no antifreeze.*
- *EVs allow you to do most of your own vehicle maintenance.*

*We look forward to your comments on this article.*

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## ***EV TAX CREDIT FOR CONVERSIONS ENERGY POLICY ACT***

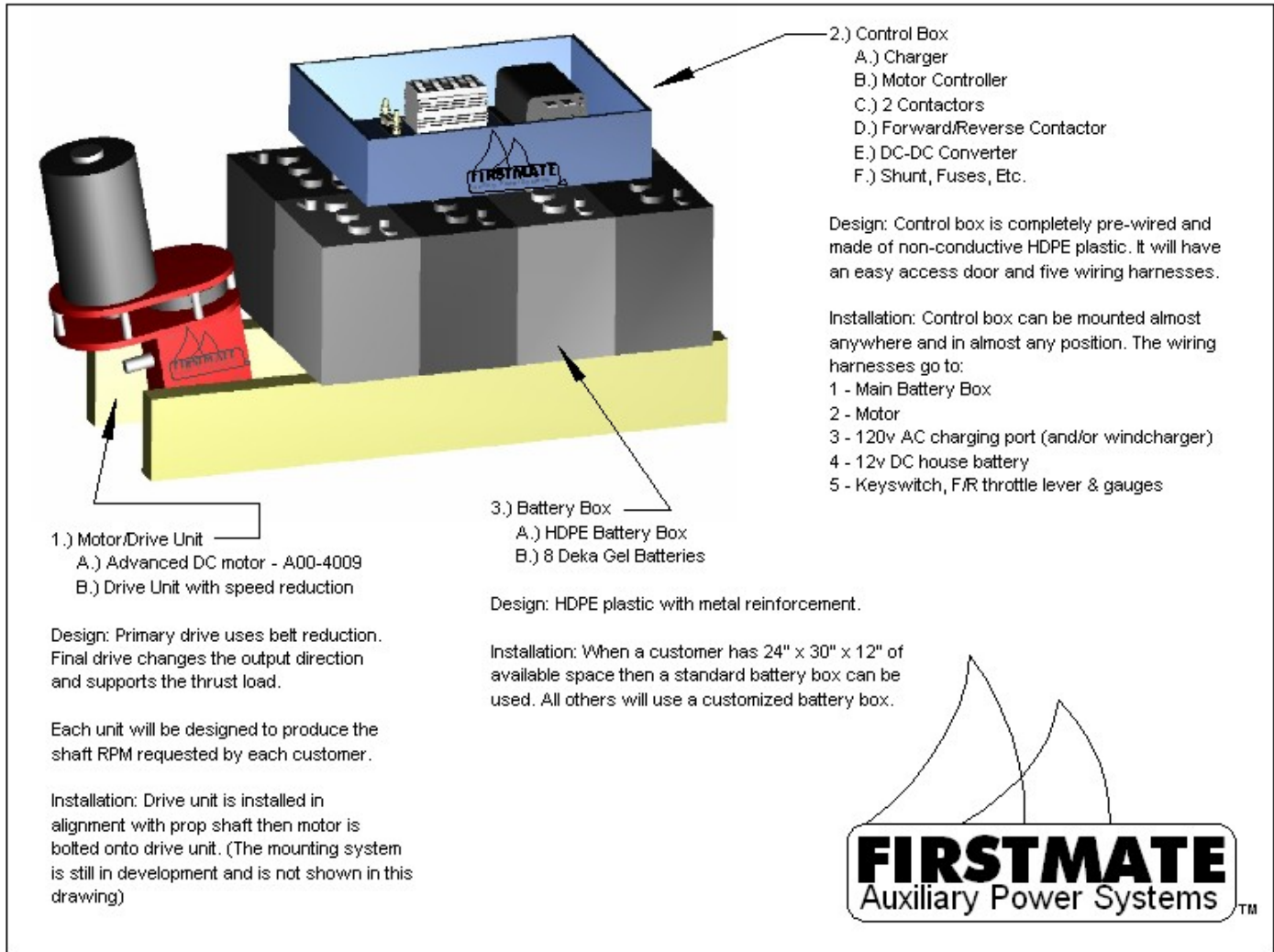
*EVA started working with Rep. Charlie Bass's Office in January to get a \$4000 tax credit for conversions. I feel that this is the only way to jump start the battery industry. The original H.R. 6 revision was in the committee draft site at [http://energycommerce.house.gov/108/energy\\_pdfs\\_2.htm](http://energycommerce.house.gov/108/energy_pdfs_2.htm) See Title VII "VEHICLES AND FUELS", you'll get to that section of the bill. Go to Page 8 and read section 712 to the end.*

*In June, the Package of Tax Policy Incentives was adopted; see <http://energy.senate.gov/public/files/taxtitle.pdf> Right now it looks like it allows conversions. I think it is important that we let our Representative and Senators know that EV Tax Credits for Conversions is a priority! If you want a sample letter, please email me at [EVAmerica@aol.com](mailto:EVAmerica@aol.com).*

*This is the only chance we have to get a piece of the tax breaks offered and to make EVs be a major step toward minimizing our demand for imported oil.*

## ***EVA INTRODUCES FIRSTMATE !***

*Electric Vehicles of America, Inc. worked with RTC Machine Company during the last few months to develop a electric drive system for sailboats in the 25 -33 ft range. This system is unique in that it is designed to be a drop in system that can be installed in a weekend. Customers can buy the complete system or modules which are pre-wired. RTC Machine has been doing our machine work for the last year.*



*Solomon Technologies has a 120V system that produces 6 hp and costs approximately \$16,000 not including the generator (\$13,000+) and installation by their designated crew.*

*Our 48V system is approximately \$5000! Ours can be installed by the Owner! A 48V wind generator is less than \$1000!*

## ***EVA SAFETY CONCERNS***

*There are two Safety Concerns of which we want to make people aware. They are:*

- *Fuses to Voltmeter and Fuel Gauge*
- *Towing an Electric Vehicle*

### *Fuses*

*We sell a Fuseholder (4) which is used for fusing most of the control circuits in an EV. It can be used for the ammeter- but it cannot be used for the voltmeter and the Curtis Fuel Gauge. The fuseholder (4) is designed for only a 32V difference; the voltmeter and fuel gage see much higher voltages ( $\leq 144V$ ). Although we have never heard about either a voltmeter or fuel gage fail in 17 years, it is still a possibility. If either failed in the short circuit condition, the results could be catastrophic. Therefore, our recommendation is to use a glass type in line fuse (1 amp) for these two circuits. The glass type in line fuse is designed for 250VDC, and is readily available at Radio Shack, and other electronic stores.*

### *Towing*

*Hi Bob,*

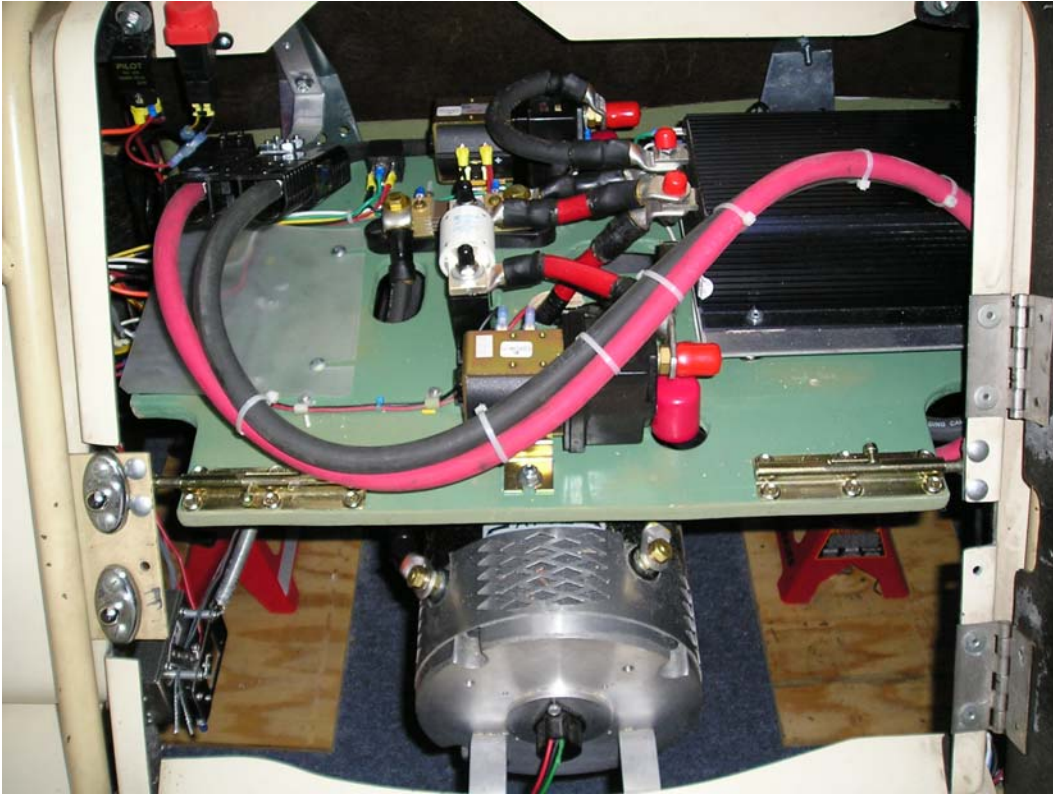
*Here is a warning to all EV'ers that use a tow dolly for transporting their electric vehicle.*

*We were on our way to an EV event. A quick check of the straps on the front wheels, release the emergency brake and we were on our way. About 4 miles into our 20 mile trip, we were jarred by an incredible force that pulled our tow vehicle to a creep. We pulled over to see our EV with smoke pouring from the hood. We opened it up to find no visible problems, but the smell was terrible. Upon closer inspection, we noticed various mangled parts strewn onto the bed of the tow dolly. These parts were fragments of what used to be commutator bars, brushes, brush holders and bearings. Yes, the moral of this story is that if you ever tow a rear wheel drive EV on a dolly, make sure you have the transmission in neutral!!! We calculate that at 60 miles per hour, the motor would have been turning somewhere in the neighborhood of 30,000 RPM's. The Advanced DC 9 inch motor just did not like the added centrifugal force and thus bid us farewell. A hard lesson to learn, but maybe we can save someone else the pain and expense of this catastrophe happening to them. Anonymous*

*We encourage anyone with a Safety Concern or Problem to let us know. We will share that experience with others. Our commitment to Safety.*

*Bob Batson*





*Lots of Ideas!*



*Conversion by Ed Doerr (Chicago Heights IL)*

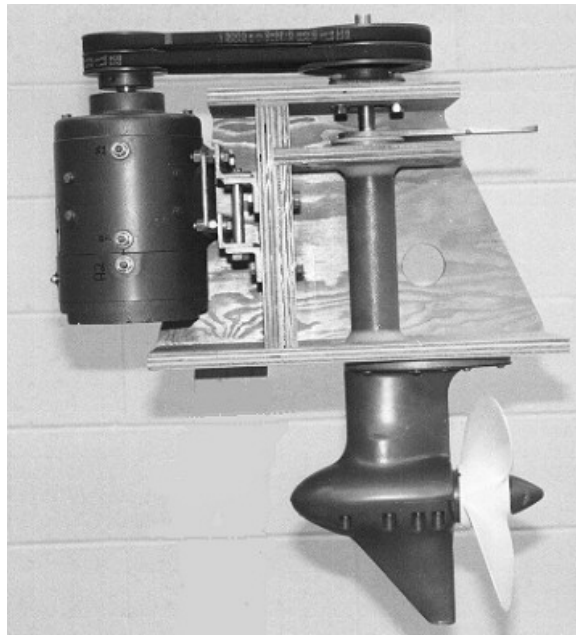


*Every Vehicle is Unique!*



Customer Boats

*Electric Boat by Andrew Cozzi (Bridgewater NJ)*



**WOW! NEVER THOUGHT OF THAT !!**

*Bass Boat – Electric*

*Mike Juskelius (Pasadena, MD)*



*Looking Good !*



*It all fits in a OutBoard Drive !*

*Sailboat Auxiliary*



*David Wright – Sailboat Auxiliary (Portland, ME)*