

## UQM OVERVIEW

UQM Technologies is a developer and manufacturer of power-dense, high-efficiency electric motors, generators, power electronic controllers and fuel cell compressors for the commercial truck, bus, automotive, marine, military and industrial markets.

A major emphasis for UQM is developing propulsion systems for electric, hybrid electric, plug-in hybrid electric and fuel cell electric vehicles. UQM is TS 16949 and ISO 14001 certified and located in Longmont, Colorado.



## UQM TECHNOLOGIES LATEST NEWS

- ❖ **March 18, 2016** – UQM Technologies CEO Interviewed by EnergyTech Investor on the Emerging Opportunities in China.
- ❖ **March 10, 2016** - UQM Technologies Receives New Follow-On Order From Proterra to Support Increased Demand.
- ❖ **February 17, 2016** - UQM Technologies and New Eagle Announce Collaboration to Provide Full Electric and Hybrid Drive Systems for Commercial, Automotive and Marine Drivetrains.
- ❖ **February 4, 2016** - UQM Technologies Reports Third Quarter Fiscal Year 2016 Revenues Up 59% Over Last Year.

## UQM PRODUCTS: UQM POWERPHASE® HYBRID SYSTEMS

UQM works with its customers in a collaborative environment to design a custom hybrid system that provides maximum performance and efficiency.

### PowerPhase® Hybrid System Features:

- ✓ Power-dense, brushless permanent-magnet motor,
- ✓ User selectable torque and speed control,
- ✓ Liquid cooled (50/50 water/glycol liquid cooling),
- ✓ Built-in safety features,
- ✓ Application-friendly graphical user interface,
- ✓ Diagnostic software with real time data logging.

### PowerPhase Product Adaptation

UQM's PowerPhase technology, range of 50 to 250 kW, provides UQM's customers the opportunity to modify any of their current systems to meet project requirements. Examples of design modifications include shaft spline changes, custom winding, mounting adapters, custom end plates.

OR

### Fully Customized Hybrid Design

Fully customized designs for motor and controller systems are available. Utilize UQM's vast experience and team of hybrid integration engineers to facilitate the process of producing a complete custom motor and controller per your project requirements.

#### Step One:

Customer provides initial specifications

#### Step Two:

Preliminary engineering discussion

#### Step Three:

Product recommendation

## **GLOBAL ELECTRIC & HYBRID ELECTRIC BUSES MARKET - PROJECTED TO GROW AT A CAGR OF 17% - RESEARCH AND MARKETS**

<http://www.businesswire.com/news/home/20160331005675/en/Global-Electric-Hybrid-Electric-Buses-Market>

The global market for electric & hybrid electric buses is projected to grow at a CAGR of 17% during 2016 - 2021. Hybrid electric buses accounted for majority of the market share in 2015, however, sales of pure electric buses are expected to grow at a faster pace over the next five years. Rising environmental concerns and increasing government investments in fuel saving technologies and alternative fuel vehicles is driving growth in global electric & hybrid electric vehicles market. Additionally, increasing urbanization coupled with rising air and noise pollution is anticipated to emerge as other contributory factors propelling demand for electric & hybrid electric buses in the coming years...

## **AS ELECTRIC CARS STALL, A MOVE TO GREENER TRUCKS AND BUSES**

[http://e360.yale.edu/feature/when\\_bigger\\_is\\_better\\_push\\_is\\_on\\_to\\_electricity\\_large\\_vehicles/2976](http://e360.yale.edu/feature/when_bigger_is_better_push_is_on_to_electricity_large_vehicles/2976)

Low gasoline prices and continuing performance issues have slowed the growth of electric car sales. But that has not stymied progress in electrifying larger vehicles, including garbage trucks, city buses, and medium-sized trucks used by freight giants like FedEx. The clang of garbage cans will still probably wake people way too early in the morning. But in Santa Rosa, California, at least, the roaring diesel engine will be quiet, replaced by a silent, electric motor. The electric garbage trucks scheduled to begin rolling there this summer may be less alluring than the sporty vehicles that engineer Ian Wright helped design as co-founder of Tesla Motors. But Wright, who left the high-end electric car company to start Wrightspeed, maker of electric powertrains for medium- and heavy-duty commercial vehicles, is on a campaign to force large, carbon-belching engines off the road...

## **DESPITE COST, METRO TRANSIT AIMS TO ADD ELECTRIC BUSES**

<http://www.masstransitmag.com/news/12190495/despite-cost-metro-transit-aims-to-add-electric-buses>

Metro Transit wants to add the first five electric buses to the agency's fleet, a move that may not be financially beneficial in the near-term but could pay off in other ways, representatives say. Chuck Wurzinger, Metro Transit assistant maintenance director, told the Metropolitan Council Transportation Committee last week in an informational presentation that after studying electric buses, the agency is ready to issue a request for proposals to add the vehicles and charging infrastructure once funding is lined up...



## FTA OFFERING UP TO \$55 MILLION FOR LOW- OR NO-EMISSIONS TRANSIT VEHICLES

<http://ngtnews.com/fta-offering-up-to-55-million-for-low-or-no-emissions-transit-vehicles/>

The Federal Transit Administration (FTA) is making up to \$55 million available for the 2016 fiscal year for the purchase or lease of low- or no-emissions vehicles under the Low or No Emissions (Low-No) Program. The funding can also be used for the required equipment or facilities for low- or no-emissions vehicles. Under the Low-No Program, a low- or no-emission bus is defined as a passenger vehicle used to provide public transportation that significantly reduces energy consumption, air pollution or direct carbon emissions when compared with a standard vehicle. The FTA cites hydrogen fuel-cell buses and battery-electric buses as examples of eligible vehicles...

## ELECTRIC BUSES MAKE ECONOMIC SENSE

<http://www.thehansindia.com/posts/index/News-Analysis/2016-03-31/Electric-buses-make-economic-sense/217715>

Electric buses generate 27 percent more revenue and 82 percent more profits than diesel buses per day, according to an Indian Institute of Science (IISc) study evaluating electric vehicles for urban transportation. The findings have special significance because primary mass transit in Indian cities is provided by 150,000 diesel buses, held responsible for contributing to urban smog and carbon emissions that are warming the planet...



## SCOTLAND'S FIRST ELECTRIC BUS SERVICE CELEBRATES 100,000 MILES

<http://www.noodles.com/viewNoodl/32888367/optare-plc/scotland8217s-first-electric-bus-service-celebrates-1000>

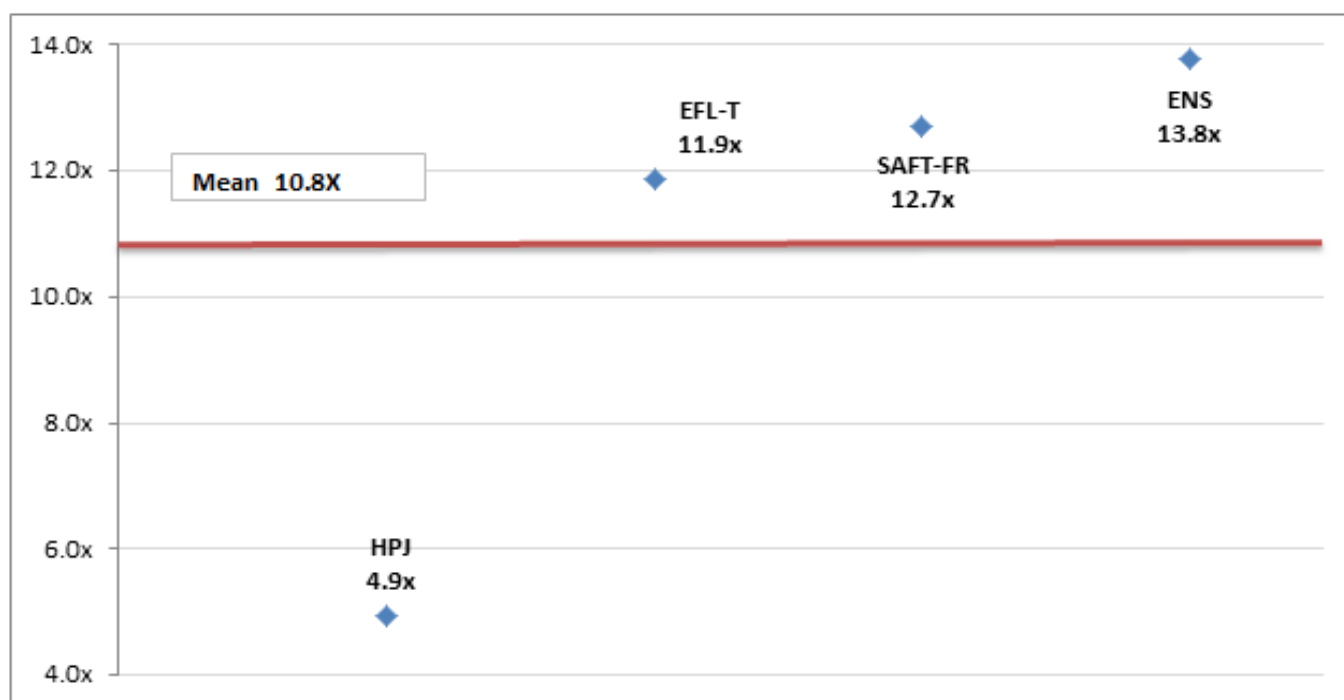
The first fully-electric bus to be used for a local bus service in Scotland recently celebrated 100,000 miles in service. The bus launched in November 2013 by Keith Brown MSP, Minister for Transport and Veterans, operates on the service, which links the ferry ports at Cairnryan to the railway station in Stranraer. The 27 seat Optare Solo battery-powered bus is operated by McLeans of Stranraer, was part-funded through the Scottish Government's Green Bus Fund and is supported by the Regional Transport Partnership SWestrans...

## ETI CLEAN TRANSPORTATION INDEX- COMP TABLE

Company	Ticker	Price	Market Cap (\$M)	Enterprise Value (\$M)	TTM EBITDA (\$M)	EV/EBITDA	Dividend Yield (%)	FY14 Revenue	FY15 Revenue	FY16 Revenue	EV / Rev FY14	EV / Rev FY15	EV / Rev FY16	FY14 EPS	FY15 EPS	FY16 EPS	P/E FY14	P/E FY15	P/E FY16
<b>Sector: Clean Transportation</b>																			
Advanced Battery	ABAT	\$0.04	3.1	-\$71	\$47	-1.5x	N/A	N/A	N/A	N/A	N.A.	N.A.	N.A.	N/A	N/A	N/A	N.A.	N.A.	N.A.
Afc Energy	AFC-LN	\$12.00	37.0	\$35	-\$2	-19.5x	N/A	\$3.6	\$1.7	\$3.6	9.8x	20.7x	9.8x	(\$1.80)	(\$0.90)	(\$1.80)	N.M.	N.M.	N.M.
Altair Nano	ALTI	\$0.50	5.8	\$14	-\$13	-1.1x	N/A	N/A	N/A	N/A	N.A.	N.A.	N.A.	N/A	N/A	N/A	N.A.	N.A.	N.A.
Bak	CBAK	\$2.37	40.6	\$53	-\$5	N/A	N/A	N/A	N/A	N/A	N.A.	N.A.	N.A.	N/A	N/A	N/A	N.A.	N.A.	N.A.
Clean Diesel	CDTI	\$0.73	13.4	\$22	-\$10	-2.2x	N/A	\$43.8	\$40.3	\$40.7	0.5x	0.5x	0.5x	(\$0.70)	(\$0.70)	(\$0.27)	N.M.	N.M.	N.M.
Clean Energy Fuel	CLNE	\$2.88	280.4	\$733	\$12	60.1x	N/A	\$406.5	\$372.4	\$393.3	1.8x	2.0x	1.9x	(\$1.07)	(\$1.02)	(\$0.55)	N.M.	N.M.	N.M.
Electrovaya	EFL-T	\$1.11	90.0	\$73	\$3	23.8x	N/A	\$15.0	\$42.9	\$44.4	4.8x	1.7x	1.6x	\$0.01	\$1.20	\$0.08	N.M.	0.9x	13.9x
Energys	ENS	\$55.68	2418.4	\$2,733	\$319	8.6x	1.0%	\$2,466.9	\$2,509.9	\$2,296.9	1.1x	1.1x	1.2x	\$3.89	\$4.31	\$3.89	14.3x	12.9x	14.3x
Fuel Systems	FSYS	\$5.55	100.4	\$39	-\$13	-3.1x	N/A	\$328.7	\$262.1	\$286.8	0.1x	0.1x	0.1x	(\$0.52)	(\$2.29)	(\$0.18)	N.M.	N.M.	N.M.
Highpower	HPJ	\$1.81	27.3	\$69	\$6	12.2x	N/A	\$152.0	\$160.4	\$181.3	0.5x	0.4x	0.4x	\$0.24	\$0.32	\$0.52	7.5x	5.7x	3.5x
Ibm Power	ITM-LN	\$11.37	24.7	\$22	-\$5	-4.7x	N/A	\$7.0	\$6.2	\$2.1	3.2x	3.6x	10.5x	(\$1.65)	(\$2.43)	(\$2.30)	N.M.	N.M.	N.M.
Maxwell Tech	MXWL	\$5.95	189.5	\$165	-\$3	-57.8x	N/A	\$184.2	\$166.4	\$156.5	0.9x	1.0x	1.1x	(\$0.15)	(\$0.65)	(\$0.38)	N.M.	N.M.	N.M.
Quantum Fuel Sys	QTWW	\$0.08	2.3	\$14	-\$13	-1.1x	N/A	\$31.4	\$39.0	\$45.7	0.5x	0.4x	0.3x	(\$0.58)	(\$0.54)	(\$0.26)	N.M.	N.M.	N.M.
Saft Groupe	SAFT-F	\$26.05	663.9	\$720	\$110	6.6x	3.4%	\$676.7	\$752.3	\$783.1	1.1x	1.0x	0.9x	\$1.79	\$1.86	\$2.16	14.6x	14.0x	12.0x
Tesla	TSLA	\$237.59	31375.3	\$32,894	-\$294	-111.9x	N/A	\$3,696.6	\$5,357.5	\$8,560.2	8.9x	6.1x	3.8x	(\$0.57)	(\$1.26)	\$1.31	N.M.	N.M.	N.M.
T3 Motion	TTM	\$0.04	0.9	\$6	-\$4	-1.4x	N/A	N/A	N/A	N/A	N.A.	N.A.	N.A.	N/A	N/A	N/A	N.A.	N.A.	N.A.
Ultralife	ULBI	\$5.10	78.2	\$64	\$6	10.5x	N/A	N/A	N/A	N/A	N.A.	N.A.	N.A.	\$0.06	\$0.20	N/A	85.0x	25.5x	N.A.
Uqm Tech	UQM	\$0.59	28.6	\$20	-\$7	-2.8x	N/A	\$12.5	\$4.6	\$6.0	1.6x	4.3x	3.3x	(\$0.14)	(\$0.14)	(\$0.17)	N.M.	N.M.	N.M.
Westport	WPRT	\$2.17	180.4	\$163	-\$103	-1.6x	N/A	\$133.2	\$110.5	\$159.8	1.2x	1.5x	1.0x	(\$1.76)	(\$1.44)	(\$0.88)	N.M.	N.M.	N.M.
<b>Average</b>											<b>2.6x</b>	<b>3.2x</b>	<b>2.6x</b>				<b>30.4x</b>	<b>11.8x</b>	<b>10.9x</b>

Source: Thomson Reuters, The EnergyTech Investor

## ETI CLEAN TRANSPORTATION INDEX- P/E BASED ON NTM CONSENSUS ESTIMATES



Source: Thomson Reuters, The EnergyTech Investor



## **PRO TERRA COMPLETES TOUGHEST ROAD TEST TO DATE, 4/3/2016**

<http://ngtnews.com/proterra-electric-bus-covers-over-32000-miles-in-106-days/>

King County Metro Transit (KCM) has completed an accelerated durability and reliability test of the Proterra Catalyst 40' FC battery-electric bus. Simulating one year of operation with a constant 97 passenger equivalent load, this was the most rigorous test of its nature ever performed in the industry.

### **THE RESULTS:**

Operating 24 hours per day over the 106-day period, the Proterra Catalyst vehicle achieved 32,545 total miles—nearly twice the distance of standard industry tests at Altoona. And the bus was hauling 14,500 pounds of water ballast during the entire test period, which represents 125% of a normal full load of 77 passengers with standees. The vehicle averaged 325 miles each day, with a maximum mileage of 572 miles in one day, and was charged more than 1,750 times during the test period. From mid-October to the end of January 2016, the bus achieved 98% uptime. It was out of service for only 6 days, including 3 holidays, preventative maintenance checks summing to 1 day, and 2 days of quick maintenance to resolve minor issues. The vehicle experienced some basic wear and tear, but nothing out of the ordinary.

### **FUEL ECONOMY:**

Average fuel economy was 15 MPGe over this testing period, 213% more efficient than current KCM 40' diesel buses. This is projected to improve to 18 MPGe at normal loads.

### **MAINTENANCE COSTS:**

Total estimated cost of maintenance for this test, including parts & labor was approximately \$0.20/mile.

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**[WWW.UQM.COM](http://WWW.UQM.COM)**

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## SHAWN SEVERSON

CEO AND EDITOR-IN-CHIEF

Mr. Severson founded EnergyTech Investor in 2015 after seeing a significant communication and information gap developing between small and micro-cap companies and the financial community. Mr. Severson has over 20 years of experience as a senior research analyst covering the technology and cleantech industries and is currently a Managing Director at the Blueshirt Group where he is the head of the Energy, Environmental and Industrial Technologies practice. The Blueshirt Group is a leading Investor Relations consulting firm focused on growth companies. Previously, Mr. Severson was at JMP Securities where he was a Senior Equity Research Analyst and Managing Director of the firm's Energy, Environmental & Industrial Technologies research team. Prior to JMP, he held senior positions at ThinkEquity, Robert W. Baird (London) and Raymond James. He began his career as an Equity Research Associate at Kemper Securities. He was frequently ranked as a top research analyst including one of the Wall Street Journal's "Best on the Street" stock pickers and multiple awards as Starmine's top three stock pickers.



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