



**October 30, 2014**

**CURRENT PRICE:** \$10.68  
**RATING:** BUY  
**PRICE TARGET:** \$15  
**CURRENT YIELD:** N/A

**EPS Estimates - GAAP**

	DEC 13A	DEC 14E
1Q	(\$0.01)	\$0.01
2Q	\$0.12	(\$0.04)
3Q	\$0.21	(\$0.11)
4Q	(\$0.10)	\$0.00
	<b>\$0.25</b>	<b>(\$0.14)</b>

**Trading Data**

52-WEEK PRICE RANGE: \$18.43-\$6.75  
SHARES OUTSTANDING: 29.28(M)  
MARKET CAP: \$312.7(M)  
AVG. DAILY TRADING VOLUME: 0.7(M)  
S&P 500: 1,994

**Valuation Data**

BOOK VALUE: \$4.41  
PRICE TO BOOK: 2.42x  
DIVIDEND: n/a

**MAXWELL TECHNOLOGIES, Inc. (NSDQ: MXWL)**

*Momentum investors return*

**Highlights**

- 3Q14 earnings of (\$0.11)/share vs. \$0.21/share during 3Q13
- Continuing slowdown in China hybrid bus market hurts earnings
- Improved UC sales in wind, auto, & rail
- 30%-35% appreciation potential
- Maintain BUY rating & \$15 price target

**Investment Thesis**

The recent sell-off in this stock has created an attractive entry point for speculative/aggressive investors seeking 30%-35% appreciation potential, or higher, from MXWL's shares during the next 3-18 months. We believe MXWL is a revenue/earnings growth story, based on rising demand for the company's products on both a short-term and long-term basis. Specifically, increased demand for the company's ultracapacitor products could drive earnings growth as auto/truck manufacturers move towards "greener" vehicles, and from increased hybrid bus business in China.

**Company Summary**

Maxwell Technologies (MXWL), headquartered in San Diego CA, develops, manufactures, and markets advanced energy storage/power delivery products. These products are used in the transportation, renewable energy, industrial, information technology sectors and the company also offers microelectronic products for space/satellite applications. MXWL's produces three primary items; ultracapacitors, high-voltage capacitors, and radiation-hardened microelectronic products. Internal manufacturing is done at facilities in San Diego CA, and Rossens Switzerland, with a new plant opening in Phoenix AZ later this year. Low-cost offshore assembling of MXWL's ultracapacitor products is done by Belton Technology (Hong Kong China) and Lishan Battery Company (Tianjin China). Sales offices are located in San Diego CA, Norfolk UK, Rossens Switzerland, Munich Germany, and Shanghai China.

*For Important Disclosure information regarding the Firm's rating system, valuation methods and potential conflicts of interest, please refer to the last two pages of this report.*



# EQUITY RESEARCH

## BUSINESS OVERVIEW

MXWL has three primary products: Ultracapacitors, High-Voltage Capacitors, and Radiation-hardened Microelectronic Products.

Ultracapacitors (UC) are energy storage devices which possess high power density (having the ability to charge/discharge energy at a fast rate) and a long operational life. MXWL's ultracapacitor cells and multi-cell packs/modules supply high energy storage/power delivery solutions for application in many industries. These products are used in the transportation, energy, consumer, industrial electronics, and information technology industries. Ultracapacitors are the "lion's share" of MXWL's business comprising 62% of 2011's sales.

High-Voltage Capacitors (HVC) are devices designed/manufactured to perform reliably in all types of climates for electric utility infrastructures for long periods of time. This product group includes grading/coupling capacitors and capacitive voltage dividers used for safety, and reliability, in electric utility infrastructures. Other applications for this product group are used in the transmission, distribution, and measurement of high-voltage electrical energy.

Radiation-Hardened Microelectronic Products (RMP) include high-performance/high-density power modules, memory modules, and single board computers. These use MXWL's patented/proprietary "RADPAK" packaging/shielding technology and unique architectures enabling MXWL's products to withstand high doses of environmental radiation and provide reliable service while in outer space. RMP are used primarily in orbiting satellites and other space crafts.

## GROWTH STRATEGY

MXWL's primary strategy is to grow revenues and profits during the next 5 years primarily through increased market demand for its ultracapacitor-based energy storage and power delivery products. Over the near-term, management believes the windmill and transit bus businesses could lead to higher revenues. Longer-term, the automotive vehicle and uninterruptable power source businesses could add an influx of new revenues towards Maxwell's operations. To this end, management is expanding manufacturing capacity to meet potential increased future product demand expected during the next two years. Revenue growth, combined with controlling expenses, could lead to significant earnings growth during the next 1-5 years for MXWL.

Continental AG, considered a Global Tier 1 automotive supplier, uses MXWL's ultracapacitors in its "stop-start idle-elimination" product. The "stop-start" product is used in the European hybrid automotive market being installed in PSA autos (Peugeot and Citroen). MXWL believes European market share growth is possible in the future, assuming "stop-start" is deployed by other foreign auto manufacturers. The "stop-start" product improves



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miles per gallon for autos by turning off the engine when it would otherwise be idling at a traffic stop. This is achieved as the “stop-start” product provides the power needed, from the ultracapacitor, to restart the vehicle. The product has appeal to auto manufacturers seeking to add a “greener” aspect to their automobiles and comply with increasingly stringent fuel/economy/emission standards.

The US auto market is another potential source of growth for MXWL due to the growing demand from customers for “greener” and more fuel-efficient automobiles. Currently no US automakers are using the company’s products. However, MXWL is hopeful this could change if domestic automakers, and US consumer demand, seek “greener” vehicles. US automakers deployment of the “stop/start” product could generate significant revenue growth for MXWL. To this end, MXWL has opened up a marketing office in Detroit MI., home of the “Big Three” US automakers.

The hybrid bus market is another potential large growth market for MXWL going forward. MXWL’s ultracapacitors are used in regenerative braking/power systems in buses. Ultracapacitors capture and store energy from a bus’s braking-action, which can then be reused to propel the vehicle from a standing stop. Thus, a bus using this product would reduce fuel consumption and corresponding exhaust emissions. This type of system has appeal to overseas bus manufacturers seeking “greener” public transit vehicles and improved urban air quality.

Overseas bus manufacturers, seeking “greener” public transit vehicles and increased fuel efficiency are using MXWL’s ultracapacitor products for metropolitan buses with hybrid-electric drive systems. MXWL has supply agreements with Voith Turbo (leading European/North America drive system integrator), Yutong (China’s largest bus producer), and others. Potentially, other bus manufacturers may gravitate towards the use of MXWL ultracapacitors in its vehicles.

MXWL’s ultracapacitors are presently being used in only 5,000 buses around the world, including pilot-projects in 3 US municipal areas. Over the near term the potential exists for new orders from China and Europe, and longer term there could be an increase in demand from US municipalities.

The heavy truck area is a new potential source of revenue growth. MXWL recently introduced the “Engine Start Module”, an engine start module for 18-wheel trucks. This product, with a 10-year design life, provides energy to start trucks, provide “stop-start idle-elimination” features, and allows the cab to run “hotel” loads off of the capacitor, while eliminating battery drain. This offers the potential to increase fuel efficiency, lower emissions, and extend a truck’s regular battery life. Industry studies estimate the North American battery replacement market for Class 4 – 8 trucks could be approximately \$1 billion, equating to a potential large source of new business for MXWL. Presently, only 1,000 of these units are being used in the North American market. However, a wider acceptance of this product by the trucking industry could be another contributor to MXWL’s revenue growth during the next 2-4 years.

Alternative energy is another growth area for MXWL. Owners of electrical generating windmills have been using the company’s ultracapacitor products. These ultracapacitors are used to rotate the windmill blades in order to protect them from problematic weather conditions. This product replaces batteries (used to change the pitch of



turbine blades), which need to be replaced periodically by servicemen. Currently, MXWL's products are in approximately 20,000 windmills, primarily in China. market sector

HVC are used primarily by the electric utility sector. Grading and coupling capacitors are vital circuit breaker components used to prevent high-voltage arcing which can damage switches, step-down transformers and other equipment involved in the transmission/distribution of high-voltage electricity circulated through utility infrastructures and high-voltage laboratories. Capacitive voltage dividers measure power/voltage levels in overhead transmission lines.

The market for these products consists of the building, expansion, upgrading, and maintenance of existing/new infrastructure systems/installations in developing countries. Recently government spending has slowed in this area due to the recent world economic slowdown. However, improvement in the world economy, or credit markets, could cause an increase in electrical infrastructure spending & provide growth opportunities for MXWL.

RMP are used mainly in the space/satellite industries. Due to high manufacturing costs of satellites/spacecrafts, long-lead times needed to develop products for this area, and relatively limited number of space programs, this is a comparatively small market for MXWL.

## Recent Earnings

MXWL recently reported a 3Q14 operating loss of (\$0.11)/share vs. \$0.21/share during 3Q13. The loss was due to quarterly revenues declining to \$41.6 million from \$51.2 million and higher operating expenses. Lower revenues were primarily the result of softness in the Chinese hybrid bus market. Total operating expenses rose to \$17.7 million from \$14.9 million. Ultracapacitor (UC) sales fell 22% to \$28.8 million from \$37.0 million, due to weakness in the Chinese hybrid-bus market, and sales of high voltage capacitor/microelectronic products decreased 10% to \$12.8 million from \$14.2 million. . The four largest segments of MXWL's UC sales were wind turbine (31%), bus (25%), autos (13%), and rail (6%).

Management stated 3Q14's revenues were "in line" with their expectations as MXWL's UC sales to the wind energy, automotive, electric rail markets, and high voltage capacitor products were "solid" while UC sales to the Chinese hybrid bus market declined during the current quarter. Microelectronic sales to the Russian markets were negative due to current US sanctions imposed by the US Government on Russia...However, during the conference call, management stated expectations of 4Q13's revenues rising 20%-25%, versus 3Q14, due to an expected increase in hybrid bus sales and continued strong wind turbine business from China



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Gross profit declined 26.7% to \$15.5 million from \$21.1 million and the gross profit margin decreased to 37% from 41% vs. 3Q13. Both declined due to lower order levels from the Chinese hybrid bus market. This was partly offset by increased wind and rail transit sales. MXWL ended 3Q14 with balance sheet cash of \$30.8 million, representing a \$100,000 increase from 2Q14. Cash provided by 3Q14 operations totaled \$6.9 million and MXWL spent \$2.3 million in capital investments, mainly on its R&D facility in San Diego CA and production capacity expansions in its Chinese contract manufacturing operations.

## RECENT ANNOUNCEMENTS

MXWL recently announced a joint development agreement with Corning Incorporated (GLW). This venture's purpose will be to improve the technology of capacitive energy storage by dealing with challenges cited by UC customers regarding energy density, life of product, operating environment, form factor, and cost.

MXWL was given the Energy Storage North America( ESNA) Innovation Award for its Philadelphia Electric Rail Project with ABB, allowing the Philadelphia rail system to be more energy efficient. The reward recognizes energy storage projects in North America which help solve the challenge of creating a dynamic and stable electricity grid.

The company announced its new Electronic Voltage Transformer (EVT) for use in smart grid applications. This product can be used for applications ranging from 110 kV to 550 kV and is the latest edition to MXWL's CONDIS family of high voltage capacitors and capacitive dividers used for digital current/voltage monitoring in smart grids to guarantee measurement accuracy.

In the truck area the company stated that more than seventy-five delivery and freight-hauling companies are testing MXWL's Engine Start Module (ESM) products on their truck fleets. MXWL's UC provides reliable starting in all weather conditions, potentially increases fuel mileage, lowers emissions, and increases the battery life for these trucks which make frequent stops for deliveries. Management noted some truck companies are currently doing a four-season testing process with Maxwell's ESM.

Win Inertia, Inc., a company specializing in power electronics, energy storage, and control/communications systems, announced they will use MXWL's UC in a stationary wayside braking energy recuperation system for an electric rail system in Cerro Negro, Spain. This system will reduce grid power consumption and allow the rail system to store excess energy in a battery bank which supplies power to an electric vehicle charging station located in the rail station. This facility also integrated a photovoltaic generator to supply additional needed energy.



## Our Thoughts

We continue to rate MXWL a BUY with a price target of \$15/share. After investors abandoned the stock earlier this year, it appears the bullish scenario is again materializing for MXWL as momentum investors are again moving back into the stock, following 3Q14's earnings conference call & an announcement of the joint venture with Corning (GLW). Management's expectations of revenues rising 20%-25% during 4Q14 (vs. 3Q14), due to rising Chinese wind turbine sector orders, was the main fuel propelling MXWL's stock 46 % from its recent low.

Going forward, there are three catalysts which could potentially cause MXWL's stock to rally further: 1) A ramp-up in orders from the Chinese hybrid bus market. 2) Truck fleets (i.e., UPS, FEDEX) announce use of MXWL's UCs in their truck fleets. 3) One of the BIG THREE US auto makers announce the use of MXWL's UCs on their cars. This stock is recommended for aggressive/speculative trading accounts seeking 30%-55% appreciation potential in the small cap alternative energy sector. Our price target is \$15, which equates to 9.68x.our Enterprise Value/Revenue multiple based on our 2014 revenue estimate.



## Risks

There are no guarantees MXWL will be able to grow future earnings. Declining customer orders, increasing commodity prices, and rising operating costs could negatively affect the company's profits. Economic slowdowns, or political change, in Europe and Asia could have adverse effects on earnings. Given the majority of its revenues come from overseas, fluctuations in currency values could impact MXWL's profitability. New products from competitors, or changing industry trends, are risks for MXWL's ability to sell its products. Negative equity markets, rising interest rates, terrorist attacks, and failure to comply with the Sarbanes Oxley Act could cause a decline in MXWL's share price. Given the relatively small amount of daily trading activity in MXWL's stock, any increase in trading volume could significantly accelerate the volatility of its share price movement.

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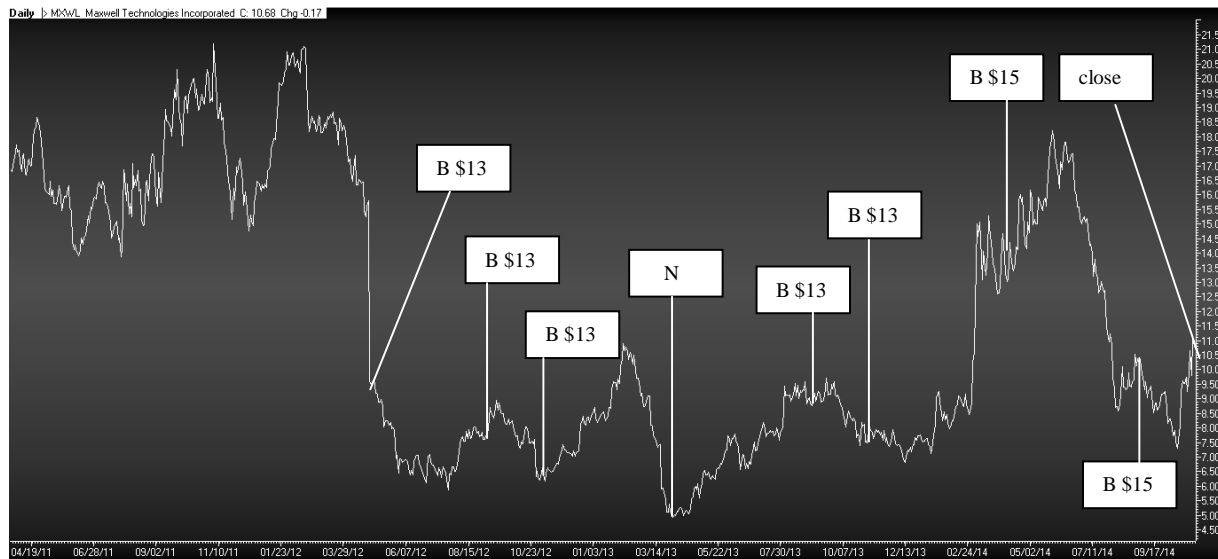
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MAXWELL TECHNOLOGIES, INC. & SUBSIDIARIES  
condensed consolidated statements of operations  
(in thousands, except per share data - unaudited)

	1Q13	2Q13	3Q13	4Q13	2013	1Q14	2Q14	3Q14	4Q14e	2014e
Revenue	\$47,748	\$55,610	\$51,197	\$38,979	193,534	\$46,001	\$46,074	\$41,593	\$48,741	\$182,409
Cost of revenue	29,518	34,034	\$ 30,084	24,605	118,241	28,131	29,474	26,123	30,219	113,947
Gross profit	18,230	21,576	21,113	14,374	75,293	17,870	16,600	15,470	18,522	68,462
Operating expenses:										
Selling, general, & administrative	11,502	11,988	9,455	11,250	44,195	10,939	10,944	10,823	11,346	44,052
Research & development	6,023	5,378	5,450	5,691	22,542	6,171	6,223	6,923	6,812	26,129
Amortization of intangibles										
Total operating expenses	17,525	17,366	14,905	16,941	66,737	17,110	17,167	17,746	18,158	70,181
Income/(loss) from operations	705	4,210	6,208	-2,567	8,556	760	-567	-2,276	364	-1,719
Interest expense, net	-44	-41	-36	117	-4	-39	-28	-49	-32	-148
Gain on embedded derivatives & warrants										
Debt discount amort/prepaid debt costs	-15	-15	-16	-14	-60	-5	-5	-5	-6	-21
Income before income taxes	646	4,154	6,156	-2,464	8,492	716	-600	-2,330	326	-1,888
Income taxes	924	749	129	350	2,152	397	581	962	212	2,152
Net income	(\$278)	\$3,405	\$6,027	(\$2,814)	\$6,340	\$319	(\$1,181)	(\$3,292)	\$114	(\$4,040)
Net income per share (diluted)	(\$0.01)	\$0.12	\$0.21	(\$0.10)	\$0.22	\$0.01	(\$0.04)	(\$0.11)	\$0.00	(\$0.14)
Shares outstanding (diluted)	28,825	28,860	28,940	28,917	28,917	29,216	29,206	29,284	29,284	29,284



## Important Disclosures



5/1/12 \$9.58 initiate BUY & \$13 price target  
 4/2/13 \$4.98 lower to HOLD  
 9/9/13 \$9.12 raise to BUY & \$13 price target  
 4/8/14 Raise price target to \$15  
 Ratings-  
 BUY: B  
 HOLD: H  
 SELL: S

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Our price target is \$15/share, equating to 9.68x our Enterprise Value/Revenue multiple based on our 2014 revenue estimate

Stock ratings used in this report are defined as follows:

- (1) Buy – The stock's total return including dividends is expected to exceed the industry or market average by at least 10% over the next twelve months.
- (2) Hold – The stock's total return including dividends is expected to be in line with the industry or market average of +/- 10% over the next twelve months.
- (3) Sell – The Stock's total return including dividends is expected to be below the industry or market average by 10% or more over the next twelve months.

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