



**CAPITOL  
SECURITIES**  
MANAGEMENT, INC.

**EQUITY  
RESEARCH**

**September 1, 2014**

**CURRENT PRICE:** \$10.27  
**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	(\$0.12)
4Q	(\$0.10)	(\$0.03)
	<b>\$0.25</b>	<b>(\$0.18)</b>

**Trading Data**

52-WEEK PRICE RANGE: \$18.43-\$6.75  
SHARES OUTSTANDING: 29.20(M)  
MARKET CAP: \$299.9(M)  
AVG. DAILY TRADING VOLUME: 0.8(M)  
S&P 500: 2,003

**Valuation Data**

BOOK VALUE: \$4.78  
PRICE TO BOOK: 2.15x  
DIVIDEND: n/a

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

*Momentum investors exit stock-buying opportunity*

**Highlights**

- 2Q14 earnings of (\$0.04)/share vs. \$0.12/share during 2Q13
- China hybrid bus market hurts earnings
- Improved UC sales in wind, auto, & rail
- 40%-45% 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 40%-45% 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.*

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## 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.

Presently, Peugeot PSA estimates approximately 300,000 of its autos (with the “start-stop” systems) were operating around the globe at the end of 2011. According to a 2011 report, Pike Research estimated a total of 3 million “stop-start” vehicles were sold in 2011 and anticipates this amount rising to 25 million annual sales by 2017, equating to 45% of the global fleet.

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.



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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. While the building of windmills in China slowed during 2H11, many industry observers believe windmill construction could accelerate in China during 2H12. If the China windmill building accelerates later this year, then MXWL believes it could experience revenue growth from this 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 reported a 2Q14 earnings loss of (\$0.04)/share vs. \$0.012/share during 2Q13. The negative results were due to lower UC sales into the hybrid bus markets and lower microelectronics product revenues due to the recent economic sanctions placed on Russia by the US Government. Revenues rose sequentially in 2Q14 to \$46.07 million from \$46.00 million, however, UC revenues declined 14% to \$33.9 million from \$39.3 million and high voltage microelectronic sales decreased 26% to \$12.2 million from \$16.4 million. When compared with 1Q14 UC revenues, MXWL experienced an increase in wind energy and electric rail applications but lower results from the hybrid bus market during 2Q14.

Gross profit margin, when comparing the two quarters, declined to 36% from 39% due to product mix, higher manufacturing costs associated with MXWL's new electrode facility, and higher levels of unabsorbed costs due to lower production volumes. As a result, gross profit fell to \$16.6 million from \$21.6 million. Total operating expenses decreased to \$17.2 million from \$17.4 million due to lower marketing expense.



#### RECENT MEETING WITH MANAGEMENT:

MXWL discussed the recent slowdown in UC sales related to the Chinese hybrid bus market. While US investors expected growing order streams from this area, management noted the Chinese Government had yet to release money, budgeted for increasing hybrid buses, to the local transit agencies for bus purchases from bus OEMs, which would place orders with MXWL. Thus, the visibility of this anticipated growing revenue stream has become clouded. In a best case scenario, the company thinks orders for this area could materialize during 2H14, or 1H15. Additionally, they pointed out there is a 2 quarter lead time to when orders are placed versus when UC are manufactured/delivered by MXWL.

MXWL noted its strategy of not further increasing its UC inventory in anticipation of new Chinese hybrid bus orders. Chinese customers have expressed a desire for MXWL to produce/warehouse UC ahead of actual order placements. However, MXWL takes a conservative manufacturing approach waiting instead for “firm” orders before the production/inventorying of UC, thus reducing its financial risk.

Regarding the microelectronics business, MXWL noted lower revenues were directly attributable towards the economic sanctions placed on Russia regarding the Ukrainian situation. The sanctions prohibit export of microelectronics used by Russia in its space program. Going forward, microelectronic revenues are expected to remain at 2Q14’s levels until removal of the Russian sanctions.

The company noted there are several areas of potential increased UC sales, going forward, in various transportation sectors to reduce emissions and increase fuel efficiency. One area would be in metropolitan electric rail braking recuperation systems allowing trains to reduce energy use (approximately 10%- 20%) and potentially sell excess electricity generated back the local electric grid. The Philadelphia metro rail system (SEPTA) and Portland OR recently announced the use of MXWL’s UC in their rail systems. Other US metro rail systems in New York, Chicago, LA, and San Francisco could potentially find UC beneficial to their respective operating systems and contribute to increased UC demand. ABB Inc. is using MXWL’s UC in tis ENVILINE braking energy recuperation product and marketing the product to various rail lines. While the rail business generated about \$1.2 million in 2013 MXWL believes it could generate approximately \$8.5 million during 2014.

Car manufacturers are another potential source of new UC revenue streams as government mandates require increased fuel efficiency and lower emissions. While MXWL’s product is currently employed by in European auto manufacturer PSA (Pugeot’s & Citroen brand cars), the company is marketing its UC technology to other European car manufacturers, as well as the Big Three in Detroit. Should any of these OEM companies decide to employ UC in their autos then a large influx of orders could materialize for MXWL.

In the truck area several 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 to deliver packages. Management noted some truck companies are currently doing a four-season testing process with Maxwell’s ESM. If, after the testing period, these companies want to implement the product in their truck fleets, they



would then go to the OEMs and request placement of ESM in new trucks. This scenario could also increase demand for MXWL's product.

#### RECENT ANNOUNCEMENTS:

MXWL unveiled its new Electronic Voltage Transformer for smart grid applications ranging from 110kV to 550kV. This product is the latest addition to the company's offerings of high-voltage capacitors and capacitive dividers used for digital current and voltage monitoring in smart grids to guarantee measurement accuracy of the grid.

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 tank 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.

MXWL announced it was supplying UC to ABB, a large player in the power/automation solutions sector, for the contract it won to upgrade the Philadelphia metro rail system, known as SEPTA. ABB is using UC in a new hybrid configuration to increase energy recovery efficiency and extend battery life. ABB believes its system will reduce SEPTA's energy consumption by 10%-20% and allow it to resell its excess energy generation into the regional power grid known as the PJM.

Woojin Industrial Systems, a Korean manufacturer of electric rail vehicles and rail system equipment, completed the installation of its energy storage system, utilizing MXWL's UC, in the braking energy recuperation systems used in seven Metro stations in Seoul, Daejeon, Incheon, and the Korean Train eXpress high-speed rail depot in Seoul.

## Our Thoughts

We believe the recent selloff presents a good entry point for aggressive/speculative investors seeking potential 40%-45% appreciation of MXWL during the next 12-18 months. Another quarter of fluctuating earnings as MXWL reported a loss of \$0.04/share during 2Q14 versus \$0.12/share in 2Q13. While the company experienced UC order growth in the automotive, rail, and windmill sector, a decline occurred in the hybrid bus sector. Given the bus sector is the lion's share of revenues, the current lack of visibility of Chinese government spending on hybrid buses caused investors to sell-off MXWL after the recent earnings release. Adding fuel to the "selling fire" were momentum investors, whom had rushed into MXWL's stock during March and April., anticipating UC technology would be used in the new proposed Tesla alternative battery manufacturing facility. As a result, MXWL's stock has fallen from a May high of \$18.43 down to its current price of \$10.27.



There are four catalysts which could cause momentum investors to buy back into MXWL's shares and push its stock higher: 1) Chinese hybrid bus orders begin to flow into MXWL's revenue streams. 2) If Detroit's Big Three automakers, or other European automakers (BMW, VW, Audi, etc) adopt the use of the company's UC product in the design of their cars. 3) Increased UC demand results from the "four season" fleet trials if truck manufacturers decide to employ UC in new fleet production. 4) Other rail systems in the US, or abroad, announce the use of energy braking recapture systems incorporating MXWL's UC.

Based on these potential factors materializing during the next few quarters we continue to rate MXWL a BUY. Our price target is \$15, which equates to 9.79x 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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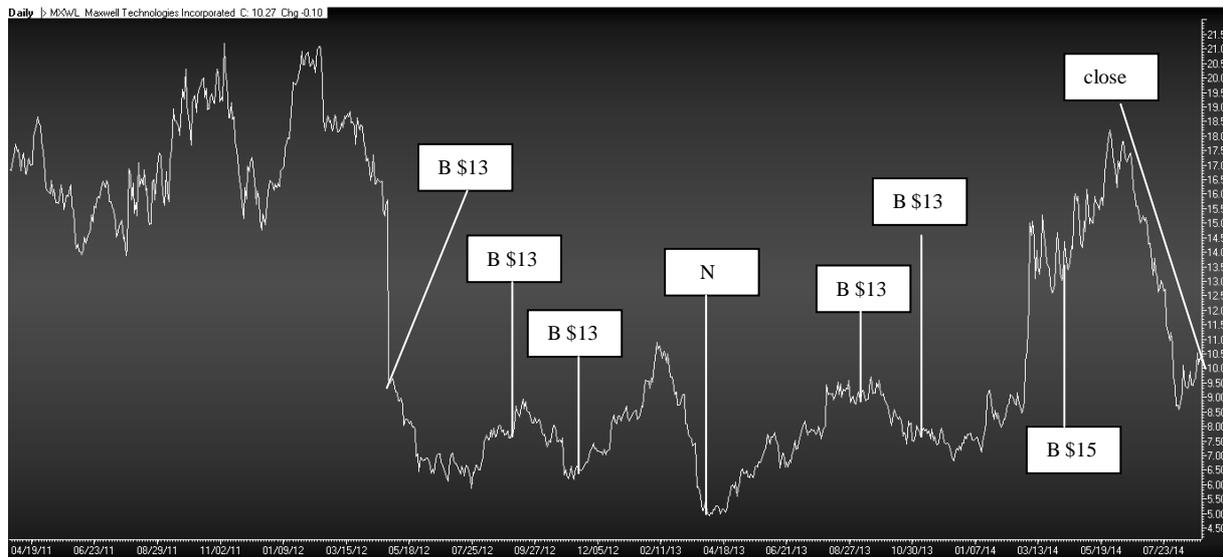


# EQUITY RESEARCH

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

	1Q13	2Q13	3Q13	4Q13	2013	1Q14	2Q14	3Q14e	4Q14e	2014e
Revenue	\$47,748	\$55,610	\$51,197	\$38,979	193,534	\$46,001	\$46,074	\$39,618	\$41,741	\$173,434
Cost of revenue	29,518	34,034	30,084	24,605	118,241	28,131	29,474	25,362	25,880	108,847
Gross profit	18,230	21,576	21,113	14,374	75,293	17,870	16,600	14,256	15,861	64,587
Operating expenses:										
Selling, general, & administrative	11,502	11,988	9,455	11,250	44,195	10,939	10,944	10,928	10,636	43,447
Research & development	6,023	5,378	5,450	5,691	22,542	6,171	6,223	6,276	5,812	24,482
Amortization of intangibles										
Total operating expenses	17,525	17,366	14,905	16,941	66,737	17,110	17,167	17,204	16,448	67,929
Income/(loss) from operations	705	4,210	6,208	-2,567	8,556	760	-567	-2,948	-587	-3,342
Interest expense, net	-44	-41	-36	117	-4	-39	-28	-28	-32	-127
Gain on embedded derivatives & warrants										
Debt discount amort/prepaid debt costs	-15	-15	-16	-14	-60	-5	-5	-7	-6	-23
Income before income taxes	646	4,154	6,156	-2,464	8,492	716	-600	-2,983	-625	-3,492
Income taxes	924	749	129	350	2,152	397	581	368	212	1,558
Net income	(\$278)	\$3,405	\$6,027	(\$2,814)	\$6,340	\$319	(\$1,181)	(\$3,351)	(\$837)	(\$5,050)
Net income per share (diluted)	(\$0.01)	\$0.12	\$0.21	(\$0.10)	\$0.22	\$0.01	(\$0.04)	(\$0.12)	(\$0.03)	(\$0.18)
Shares outstanding (diluted)	28,825	28,860	28,940	28,917	28,917	29,216	29,206	29,206	29,206	29,206

## 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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