



**January 14, 2019**

**CURRENT PRICE:** \$2.40  
**RATING:** BUY  
**PRICE TARGET:** N/A  
**CURRENT YIELD:** N/A

**EPS Estimates - GAAP**

	DEC 17A	DEC 18E
1Q	(\$0.32)	(\$0.25)A
2Q	(\$0.28)	(\$0.30)A
3Q	(\$0.37)	(\$0.23)A
4Q	(\$0.24)	(\$0.34)
	<b>(\$1.22)</b>	<b>(\$1.12)</b>

**Trading Data**

52-WEEK PRICE RANGE: \$6.27-\$1.77  
 SHARES OUTSTANDING: 42.5(M)  
 MARKET CAP: \$102.0(M)  
 AVG. DAILY TRADING VOLUME: 0.3(M)  
 S&P 500: 2,583

**Valuation Data**

BOOK VALUE: \$2.31  
 PRICE TO BOOK: 1.04x  
 DIVIDEND: n/a

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

*Lowering to HOLD over cash concerns*

**Highlights**

- 3Q18 GAAP earnings of (\$0.23)/share vs.(\$0.37)/share during 3Q17
- Hoping for revenue growth in 2020
- Sold High Voltage product line for \$51 million
- Concern over decreasing cash
- Lowering rating to a HOLD

**Investment Thesis**

The recent sell-off in this stock was created over investor concerns about declining balance sheet cash as revenues declined and rising expenses. The next 6-18 months will be critical for MXWL given its need to grow revenues before cash runs out. Potentially, higher revenues could occur from increased demand for the company’s ultracapacitor and dry battery electrode (DBE) products as auto/truck/rail industries move towards “greener” options to increase mileage and lower vehicle emissions.

**Company Summary**

Maxwell Technologies (MXWL-\$2.40), 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. MXWL’s main product is ultracapacitors and is developing DBE technology. Internal manufacturing is done at facilities in Phoenix AZ and Rossens Switzerland. 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 primary product sales come from its ultracapacitors geared for energy storage by automobiles, buses, rail, wind systems, and energy grids. The company is developing a DBE in hopes of selling the technology either to a battery manufacturer /OEM, or form a joint manufacturing venture.

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.

In 2016 MXWL sold its Radiation-Hardened Microelectronic Products business to Data Device Corporation for approximately \$21 million in cash.

MXWL completed its 2017 purchase of Nesscap Energy Business for \$23.75 million. The acquisition was paid for with newly issued shares of MXWL stock. Nesscap produces smaller sized UC products and could compliment sales of MXWL's larger UC products.

Last year Geely/Volvo signed an agreement to use MXWL's UCs in their vehicles.

MXWL recently sold its High Voltage product line to Renaissance Investment Foundation for \$55.1 million. This was done to streamline operations and focus on its UC business and the development of its Dry Battery Electrode (DBE) product.

## **MXWL TRANSITIONING SALES/GROWTH EFFORTS**

About 5 years MXWL's changed its management and sales strategy with the objective of diversifying its targets markets and grow revenues. CEO, Dr. Franz Fink joined the company in May 2014 and hired a new CFO, David Lyle, and employed new people for key/strategic positions. Dr. Henning Hauenstein became MXWL's Vice President of Strategy/Marketing after working at Infineon Technologies for 10 years as Senior Vice President /General Manager of the automotive business segment.

MXWL believes its turnaround may come from the auto and electrical grid market opportunities, as well as "pipeline opportunities". The three primary drivers will be 1) renewable power generation, 2) vehicle electrification, and 3) changes in the electric battery market.

One potential area for revenue growth is the electric grid business as grid owners seek to save more energy generated and decrease down time for these systems. There are two parts to this sector-global OEMs dealing with



transmission lines and at the distribution level (i.e., micro grid). This could be beneficial to MXWL's revenues during the next 2-5 years.

The energy storage area offers another, but smaller revenue, opportunity as MXWL's products could be used in energy storage devices. For example, a manufacturing center could need electric storage capabilities, to handle its own supply needs, when electricity is scarce, during peak demand times for the local utility. Potentially, MXWL's UCs could be used in these energy storage systems and would be offered by its larger partner, which is selling these items to electrical grid operators/owners. MXWL believes revenues from "micro grid" orders could materialize in 2019-2020.

The wind turbine markets could add \$50 million - \$80 million in revenues over the next few years. Over the short run, management believes ~\$10 million in additional wind revenues could materialize as wind farm maintenance contracts will be expiring and these operators could move towards MXWL's ultracapactors to replace them during the next 1-2 years. Thus, there may be some increase in wind revenues in 2019 and more could materialize in 2020-2022.

Another area MXWL sees as a potential new avenue of revenues is in the dry electrode battery technology area (DBE). Management's objective is to partner with automotive and energy storage industry leaders. Hopes are this area could "unlock new application forms" in this area for MXWL products and generate a new revenue stream beginning in 2021-2022.

MXWL finished the "proof-of-concept" process for its DBE product. Management estimates this product could either allow up to 10%-20% more per battery charge, or allow battery producers to decrease the size of auto batteries but maintain the current amount of charging power. If this product enters the battery market, in 2021 or 2022, MXWL believes revenues will be produced from royalty agreements as it is introduced into the hybrid auto markets, either by an OEM or a large sales supplier.

MXWL management also saw the need to shift MXWL away from the Chinese government subsidy-dependent hybrid bus business and diversify into other sectors moving towards mandated energy efficient standards set for 2020. These other sectors include electric/utility grid systems, wind generation, railroad systems, automotive, and truck sectors. To this end, plans are to work with existing customers and establish new strategic partnerships to assist funding of key technologies/ solutions to accelerate the broader commercialization of MXWL's products. For example, agreements have been signed with Corning (GLW-\$29.85) to develop/market MXWL", and with Duke Energy (DUK-\$83.66) and US and foreign railroad systems to employ products in their electrical grid systems.

Management expanded its partnership with China Railway Rolling Stock Corporation (CRRC). The expansion localized manufacturing of MXWL's UC-based modules, by CRRC for use in green energy bus market in China. CRRC will exclusively use MXWL's 2.7-volt and 3-volt UC cells in local production lines and manufacture the products



## RECENT DEVELOPMENTS

This past August, MXWL did a public offering of 7.59 shares of common stock at an offering price of \$3.25/share. This offering was used to raise operating funds and will increase outstanding shares of its common stock to approximately 46 million.

MXWL announced a grid energy storage subsystem design-in with Siemens Transmission Solutions (SEIGY-\$4.80). This product is designed to stabilize global power grids, providing ISOs, electrical utilities and transmission system operators better control of electrical grids and the ability to reduce blackouts.

MXWL recently sold its High Voltage product line to Renaissance Investment Foundation for \$55.1 million. This was done to streamline operations and focus on its UC business and the development of its Dry Battery Electrode (DBE) product.

## RECENT EARNINGS

MXWL reported 3Q8 earnings of (\$0.23)/share vs. (\$0.37)/share during 3Q17. The decrease in MXWL's operating loss was due to lower operating expenses (\$14.6 million vs. \$20.7 million) more than offsetting a decline in revenues (\$33.7 million vs. \$35.8 million). Operating expenses were lower following decreases in SG&A (\$9.1 million vs. \$14.6 million) and restructuring exit costs (+\$47,000 vs. -\$1.3 million), while being partly offset by higher R&D expense (\$5.6 million vs. \$4.9 million). Revenues fell because of decreases in energy storage sales (\$26.5 million vs. \$27.6 million) and high-voltage sales (\$7.2 million vs. \$8.3 million). MXWL's gross profit margin decreased to 18.9% from 20.4% when comparing the two quarters, as lower total operating expenses offset declining revenues. During the conference call management stated uncertainty over trade tariffs are negatively impacting its business and will continue to until a resolution is made between China and the US.



## Our Thoughts

During the past two years MXWL management has been developing technology to take advantage of potential revenue growth opportunities in 2020 as automobile manufacturers move towards more fuel efficient government mandates. Unfortunately, rising operations/product development expenses, coupled with declining revenues, have depleted MXWL's balance sheet cash. When comparing 3Q18 to 3Q17, cash decreased to \$23.6 million from \$52.9 million. The question now is whether MXWL will be able to survive awaiting potential revenue growth in 2020? Management has bought itself some time recently with the sale of its High Voltage product line to Renaissance Investment Foundation for \$55.1 million, netting roughly \$48 million after fees. However, the High Voltage product line will also reduce MXWL's annual revenue stream by approximately \$20 million-\$24 million.

Management believes revenues could ramp-up during the next 24 months from its DBE product, the Geely/Volvo agreement (~\$10 million annually), and if other potential auto manufacturers agree to use MXWL products, potentially turning the company towards positive EBITDA/earnings in 2020. We await the 4Q earnings call to see what type of forward guidance is provided by MXWL for 2019.

We are lowering our rating on MXWL to HOLD based on concerns over the company's cash burn situation, which could become more critical due to a lack of revenue growth during 2019. While the sale of its High Voltage product line will provide about \$48 million in cash, the company will need to see revenue growth during the next 12-18 months from the automotive, windmill, power, and rail businesses to 1) offset the lost revenue stream from the High Voltage product line and 2) generate sufficient cash flow to maintain its operations.



## Risks

There are no guarantees MXWL will be able to grow future earnings or have enough cash to operate in the future. 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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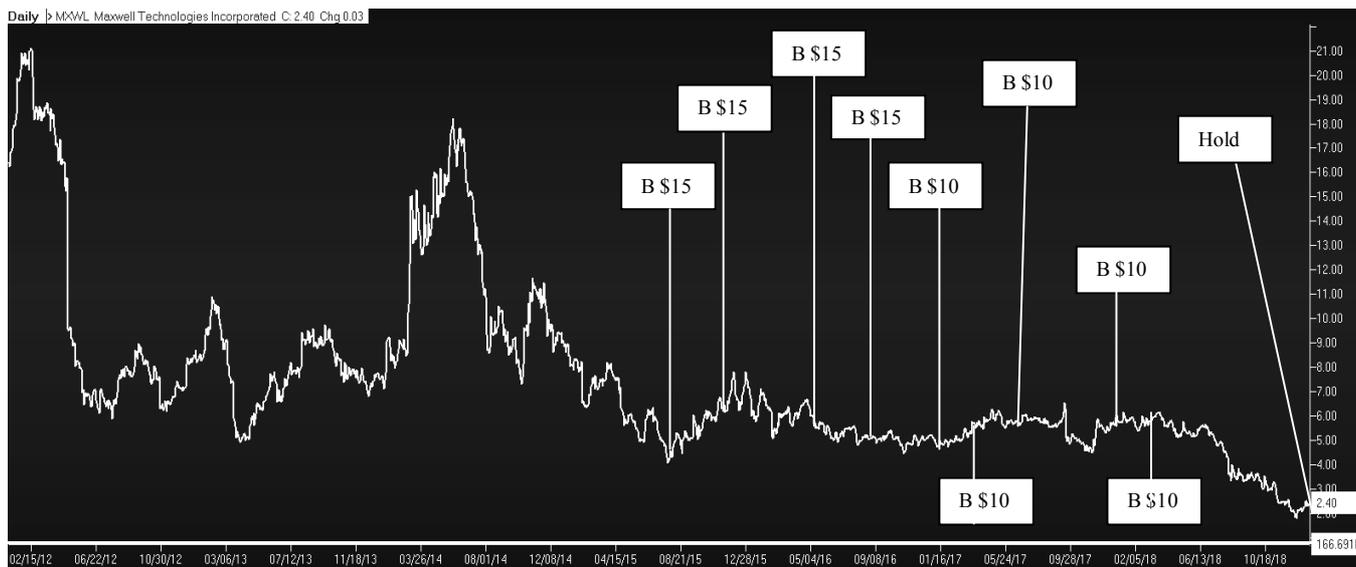


# EQUITY RESEARCH

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

	1Q17	2Q17	3Q17	4Q17	2017	1Q18	2Q18	3Q18	4Q18e	2018e
Revenue	\$26,686	\$37,103	\$35,816	\$30,763	\$130,368	\$28,416	\$29,464	\$33,727	\$25,831	\$117,438
Cost of revenue	20,049	29,276	28,420	23,832	101,573	22,735	24,036	27,357	21,439	95,567
Gross profit	6,191	7,827	7,396	7,381	28,795	5,681	5,428	6,370	4,392	21,871
Operating expenses:										
Selling, general, & administrative	9,540	12,070	14,514	9,694	45,818	9,572	9,787	9,052	9,348	37,759
Research & development	7,686	4,430	4,891	4,344	18,351	5,532	5,549	5,599	5,462	22,142
Amortization of intangibles										
Restructuring/exit costs	997		1,251	34	2,282	57	78	47	63	245
Asset Impairment charges				240	240					
Total operating expenses	15,223	16,500	20,656	14,312	66,691	15,047	15,414	14,604	14,883	59,948
Income/(loss) from operations	-9,032	-8,673	-13,260	-6,931	-37,896	-9,366	-9,986	-8,234	-10,491	-38,077
Gain on asset sale										
Interest expense, net	63	97	152	1,043	1,355	993	1,030	1,252	1,168	4,443
Other Income	1	52	14	18	85	38	41	34	36	149
def. benefit plan, net	155	298				221	211	217	214	863
Amort of debt discount/prepaid debt costs										
Debt discount amort/prepaid debt costs										
For. Currency loss, gain	97	19	65	256	306	89	238	56	146	529
Income before income taxes	-9,191	-8,736	-13,333	-8,212	-39,472	-10,227	-11,002	-9,359	-11,691	-42,279
Income taxes	1,208	1,382	527	540	3,657	1,022	300	364	263	1,949
Net income	(\$10,399)	(\$10,118)	(\$13,860)	(\$8,752)	(\$43,129)	(\$9,205)	(\$11,302)	(\$9,723)	(\$11,954)	(\$42,184)
Net income per share (diluted)	(\$0.32)	(\$0.28)	(\$0.37)	(\$0.24)	(\$1.22)	(\$0.25)	(\$0.30)	(\$0.23)	(\$0.34)	(\$1.12)
Shares outstanding (diluted)	32,200	35,526	37,008	37,115	37,115	37,522	38,068	42,497	46,000	46,000

## Important Disclosures



5/1/12 \$9.58 initiate BUY & \$13 price target  
 4/2/13 \$4.98 lowered to HOLD  
 9/9/13 \$9.12 raise to BUY & \$13 price target  
 4/8/14 Raise price target to \$15  
 1/5/17 Lower price target to \$10  
 1/14/19 \$2.40 Lower rating to HOLD

Ratings-  
 BUY: B  
 HOLD: H  
 SELL: S

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- (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.
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