



NEEDHAM GROWTH CONFERENCE

SAFE HARBOR

• The company's guidance with respect to anticipated financial results for future periods, potential future growth and profitability, our future business mix, expectations regarding future market trends and the company's future performance within specific markets (e.g., statements regarding anticipated semiconductor and industrial market growth) and other statements herein or made on the aboveannounced conference call that are not historical information are forward-looking statements within the meaning of Section 27A of the Securities Act of 1933 and Section 21E of the Securities Exchange Act of 1934. Forward-looking statements are subject to known and unknown risks and uncertainties that could cause actual results to differ materially from those expressed or implied by such statements. Such risks and uncertainties include, but are not limited to: (a) the effects of global macroeconomic conditions upon demand for our products and services; (b) the volatility and cyclicality of the industries the company serves, particularly the semiconductor industry; (c) delays in capital spending by end-users in our served markets; (d) the accuracy of the company's estimates related to fulfilling solar inverter product warranty and post-warranty obligations; (e) the company's ability to realize its plan to avoid additional costs after the solar inverter wind-down; (f) the accuracy of the company's assumptions on which its financial statement projections are based; (g) the impact of product price changes, which may result from a variety of factors; (h) the timing of orders received from customers; (i) the company's ability to realize benefits from cost improvement efforts including avoided costs, restructuring plans and inorganic growth; (j) the company's ability to obtain in a timely manner the materials necessary to manufacture its products; (k) unanticipated changes to management's estimates, reserves or allowances; and (l) changes and adjustments to the tax expense and benefits related to the recently enacted U.S. tax reform. These and other risks are described in Advanced Energy's Form 10-K, Forms 10-Q and other reports and statements filed with the Securities and Exchange Commission (the "SEC"). These reports and statements are available on the SEC's website at www.sec.gov. Copies may also be obtained from Advanced Energy's investor relations page at http://ir.advanced-energy.com or by contacting Advanced Energy's investor relations at 970-407-6555. Forward-looking statements are made and based on information available to the company on the date of this presentation. Aspirational goals and targets discussed in the presentation materials should not be interpreted in any respect as guidance. The company assumes no obligation to update the information in this presentation.



POWERING THE 4TH INDUSTRIAL REVOLUTION

- **MARKET LEADER** in precision power solutions
- **GROWING** share and content across core markets
- **BROADENING** market presence through inorganic investments
- ACCELERATING earnings growth and Return on Invested Capital



WE ARE A PURE PLAY POWER LEADER



Leader in precision power conversion and control with wide range of technologies, products and applications







SERVER SYSTEM



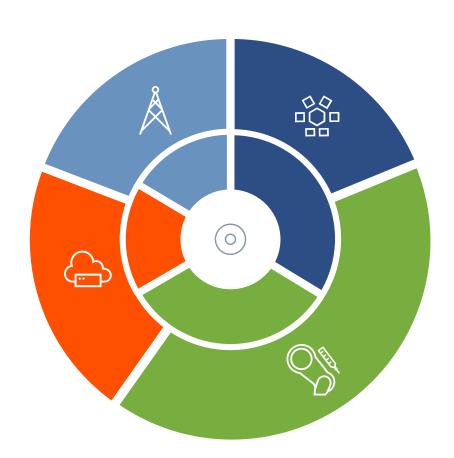
PROCESSING







ADDRESSING CRITICAL MARKETS IN THE DATA ECONOMY

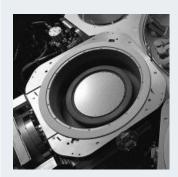


Combined SAM of \$9.0 billion (1)
Pro Forma 2019 Projected Revenues (2)



SEMICONDUCTOR EQUIPMENT

\$1.7 billion



Etch, Deposition, Thermal, Ion Implant, Epi, ECD, Inspection & Metrology, Semi ATE, Advanced Packaging



INDUSTRIAL & MEDICAL

\$3.7 billion



Medical, Life Sciences,
Analytical Instruments,
Test & Measurement,
Material Processing,
Thermal Processing,
Motion Control,
Robotics, Horticulture



DATA CENTER COMPUTING

\$1.9 billion



Hyperscale,
Data Center,
Cloud & Edge
Computing, Enterprise
Server & Storage
Systems



TELECOM & NETWORKING \$1.7 billion

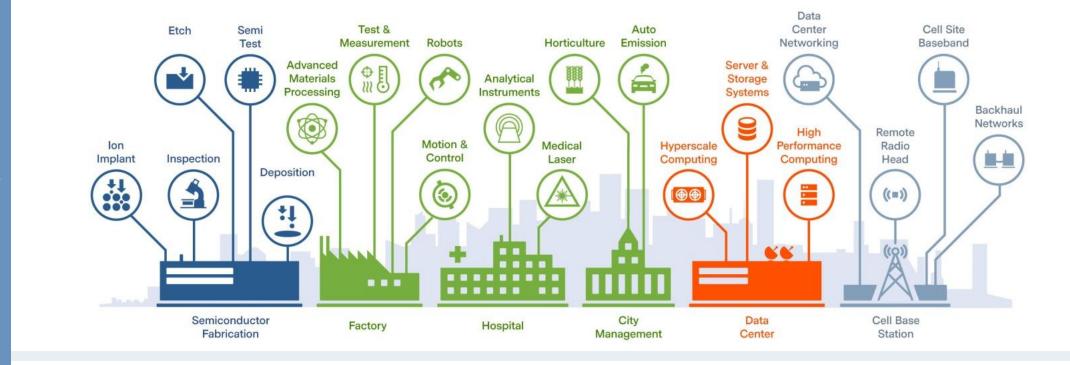


Base Stations, Tower Radio, 4G LTE & 5G Cellular Infrastructure, Enterprise Networking, Wireless & Wireline Communication



⁽¹⁾ Source: IHS Markit Power Supply Market Report, August 2019 and AE estimates; note: Semiconductor Equipment SAM is based on mid-cycle WFE, other markets are based on 2019 estimates

POWERING THE FOURTH INDUSTRIAL REVOLUTION



APPLICATIONS

INDUSTRIES

ADVANCED

EMBEDDED





DC Generator



RPS



High Voltage System



Photonics



SCR Power Controller

Embedded Power Products: Provide stable and efficient power for mission critical applications

Advanced Power Products: Deliver precise power, control and measurement of processes



Power Systems



Power Shelves









DC-DC



HVDC

A HISTORY OF INNOVATION AND TECHNOLOGY LEADERSHIP





1990s

Step function

above

competition

Enabling solutions that deliver precise electrical energy optimized for targeted applications

AE

Unmatched

performance

TRANSFORMING INTO A DIVERSIFIED POWER LEADER

Deployed \$568M adding >\$750M of pro forma revenue⁽¹⁾

- Expanded our SAM by >4X
- A repeatable model in the large and fragmented power conversion market
- Artesyn integration executing our synergies targets





⁽¹⁾ Pro-forma annualized revenue

⁽²⁾ EPS accretion based on non-GAAP measures as defined by our synergy targets

ARTESYN - A HIGHLY STRATEGIC AND TRANSFORMATIVE ACQUISITION

GLOBAL PLATFORM



GLOBAL PRESENCE ACROSS TECHNOLOGIES AND MARKETS

EXPAND SAM BY ALMOST 4X



ADDING NEW VERTICALS AND CROSS **SELLING OPPORTUNITES**

STRATEGIC FIT



HIGHLY COMPLEMENTARY AND SHARED CORE COMPETENCIES

BROADENS AND DIVERSIFIES



MULTIPLE, STABLE GROWTH **VERTICALS AND CUSTOMERS**

ACCELERATED NG EPS GROWTH

EPS Accretion⁽¹⁾



Initial

Near-Term Long-Term

DRIVEN BY SYNERGIES OF >\$20M NEAR-TERM AND >\$40M LONG-TERM

ATTRACTIVE DEAL ECONOMICS

Synergies-Adjusted EBITDA Multiple⁽²⁾



WITH MEANINGFUL OPPORTUNITY FOR MARGIN EXPANSION



TARGETED GROWTH STRATEGY



GROW SHARE ACROSS MISSION CRITICAL, PRECISION POWER VERTICALS

- Expand content in semiconductor
- Grow in hyperscale data centers
- Capitalize on 5G migration
- Broaden industrial and medical footprint



INVEST IN INNOVATION AND TECHNOLOGY LEADERSHIP

- RF power leadership
- "Right" Power solutions
- Power efficiency and density
- Drive Industry 4.0 adoption



LEVERAGE STRONG FINANCIALS AND INCREASED SCALE TO CAPITALIZE ON NEW OPPORTUNITIES

- Cross selling
- New market verticals
- New joint product offerings
- Inorganic growth



AE PROCESS POWER ENABLES SEMI NODE TRANSITIONS



Process Challenges

3D Memory – small/deep holes >70:1 aspect ratios

Memory stacking **Layer uniformity in thick stack**

Atomic-scale logic features

Sidewalls and holes

Complex 3D shapes
3D transistors <10nm

High selectivity

Etch only what you want

Low stress in 3D and packaging Flat vs. potato chips

Power Trends

Etch

- Tune-while-pulsing
- Higher energy

Deposition

- Higher frequency
- Shorter processes

Fragile films

- Low power accuracy
- Lower frequencies

AE "Right" Power

- Integrated power topology
- Power metrology
- Control algorithms
- Connectivity
- Advanced control & pulsing

Beyond RF

- Mono-energetic control
- Tunable energy profile
- Novel energy control
- Novel wave shaping

Semiconductor process chamber (i.e., etching a wafer)

AE Navigator II RF match



AE RF

generator 1



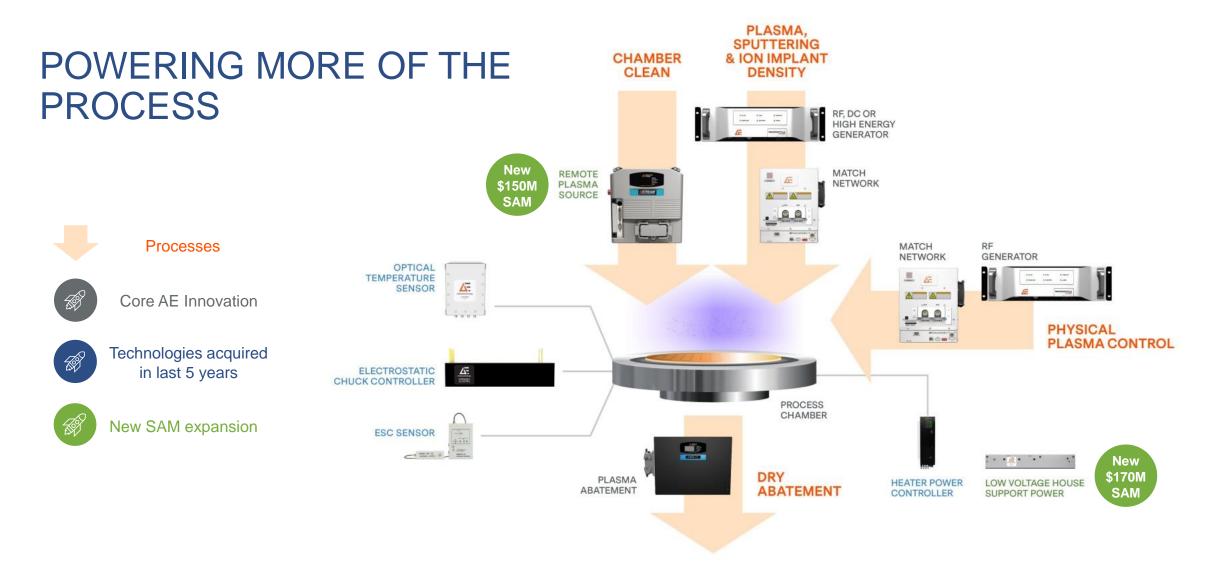
AE RF

generator 2

EVoS ► Delivers beyond RF Power

AE First with Solutions for Power – First to Power Solutions





AE "Right" Power Delivers Broader Integrated Solutions ... While Adding >\$750M SAM

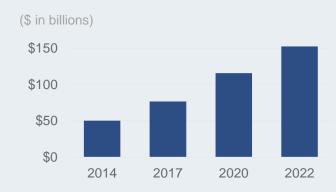


POWERING 4IR & GROWTH IN MEDICAL



FAVORABLE MARKET GROWTH TREND

Industry 4.0 End Market



- Industry 4.0 related investments expected to grow at a 15%+ CAGR⁽¹⁾
- Explosive growth in autonomous and collaborative robots at 50%+ CAGR⁽¹⁾
- Increased use of power in diagnostic and therapeutic applications

GROWTH STRATEGY

- Expand standard product portfolio to serve Industry 4.0 applications
- Cross sell data center products into industrial edge applications
- Broaden product portfolio and expand channel in medical

WHY WE WIN

- Industry-leading portfolio of configurable power platforms
- Growing software capability for monitoring and control

Standard with growing SW



Most advanced configurable power supply















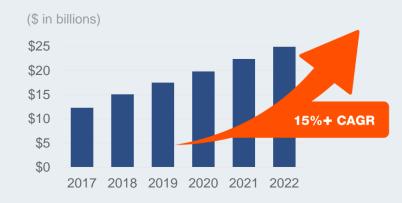
⁽¹⁾ Source: Markets and Markets, Industry 4.0 Market report and Robot Market Sizes Report

FOCUS ON HYPERSCALE



FAVORABLE MARKET GROWTH TREND

Hyperscale infrastructure end market⁽¹⁾



- Hyperscale growing at 15% CAGR⁽¹⁾
- Increasing data center traffic and IoT trends drive edge investment
- Increased workload driven by Artificial Intelligence and Machine Learning

GROWTH STRATEGY

- Launch market-leading efficiency products
- Accelerate time-to-market with standard data center power supplies
- Expand customer base to original design manufacturers

WHY WE WIN

- · Industry-leading efficiency and density
- Trusted brand with 1M+ units shipped
- Significant design wins at majority of Tier 1 hyperscalers
- Strong reputation with deep engineering relationships

Technology leadership: 98% power efficiency

Efficiency	94%	96%	98%
No. of leading suppliers	15+ AE	~7 AE	High technical challenges reduce competition

Server front-end density leadership

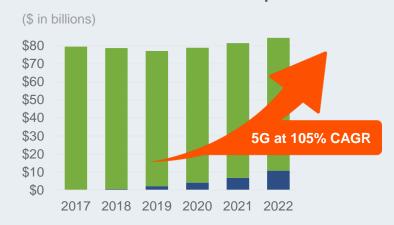




TARGET 5G INFRASTRUCTURE

FAVORABLE MARKET GROWTH TREND

Wireless infrastructure Spend⁽¹⁾



- Growth returning to wireless infrastructure with 5G launch
- Increased capacity demand driven by expanding use cases

GROWTH STRATEGY

- Ramp current programs with key Tier 1 networking customers
- Win new designs in 5G radio power for both macro cells and small cells

WHY WE WIN

- Leading reputation in high density, rugged power supplies for outdoor radio applications
- Secured significant 5G design wins across all leading base station OEMs
- Deep application knowledge and 20+ years of customer intimacy

Powering many of the largest wireless networks across the world



High reliability ruggedized power supply for the harshest of environments







EARNINGS GROWTH VISION



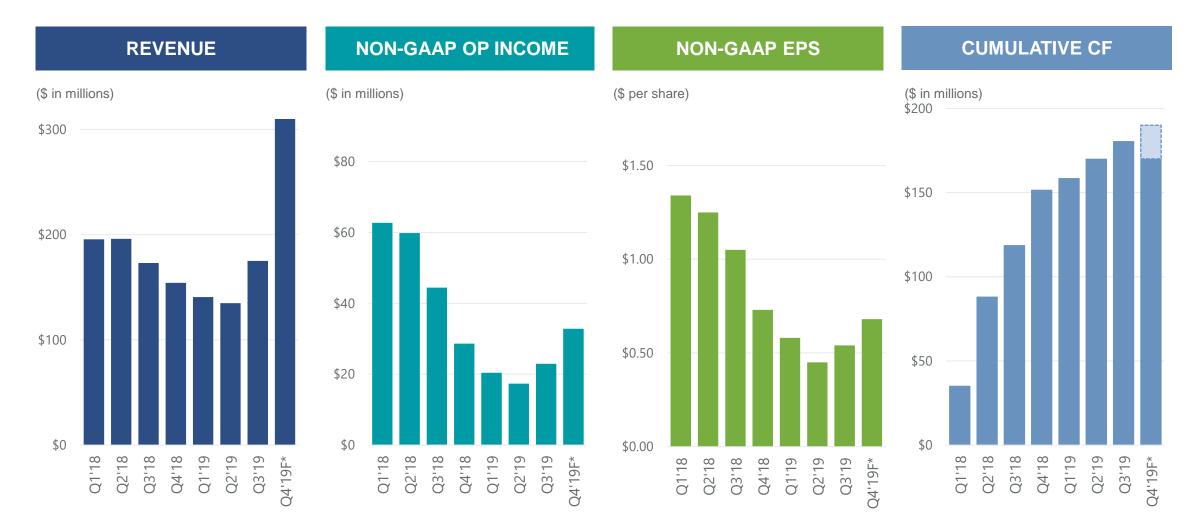
DELIVERED TOP TIER FINANCIAL RESULTS



Exceeded Three Year Aspirational Goals



RESILIENT FINANCIAL MODEL THROUGH DOWNTURN

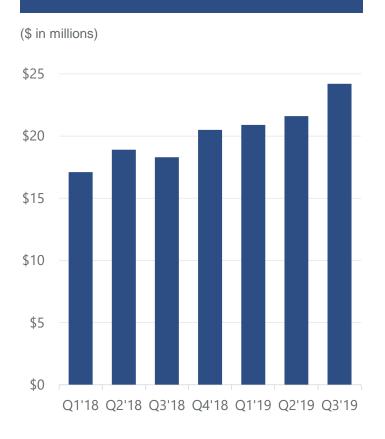




^{*} Note: Q4'19F data is based on mid points of guidance provided during the Q4'19 earnings call. Cumulative cash flow for Q4'19 shown as both all-in and proforma, which excludes deal costs and non-Embedded Power acquired net payables.

INCREASED R&D INVESTMENTS WHILE OPTIMIZING COSTS

NON-GAAP R&D EXPENSES



CUMULATIVE COST SAVINGS



- Increased R&D organically 8%
- Increased capital investment 7% to fund dual factory strategy
- Reduced annualized SG&A 12%*
- Reduced total headcount 8%*
- Closed or reduced three sites
- Reduced square footage 10%*



SYNERGY & SCALE ENABLE ACCELERATED EARNINGS GROWTH

>\$6.50

Long-Term Non-GAAP EPS Goal⁽³⁾





Energy

^{(2) \$0.40} annualized, net of interest expense, partially reflected in 2019

⁽³⁾ This figure represents our aspirational goal and is not to be treated as guidance

TARGET OPERATING MODEL YIELDS TOP TIER PERFORMANCE

Revenue (\$M)
NG Gross Margins ⁽¹⁾
NG Operating Margins ⁽¹⁾
Cash Flow (\$M)
Non-GAAP EPS
ROIC

d ⁽²⁾	
	-
	-
	-
	_
_	

1.3B Model
\$1,300
36-37%
14-15%
\$140
\$3.75
15%

1.4B Model							
\$1,400							
38-39%							
17-18%							
\$160							
\$5.00							
19%							

SYNERGIES FULLY REALIZED

Long-term Target
\$1,500
40-41%
19-21%
\$180
\$6.50
23%



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LEAN OPERATIONS ENABLE TOP QUARTILE ROIC

COMPARISON OF ROIC BETWEEN AEIS AND PUBLICALLY-TRADED PEERS BASED ON TRAILING FOUR QUARTER RESULTS

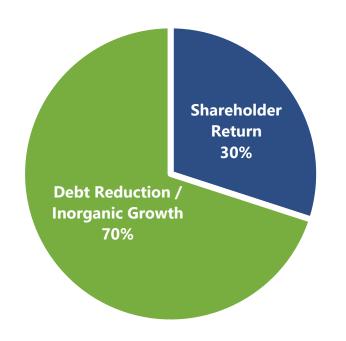




CAPITAL ALLOCATION AND BALANCE SHEET

NEAR-TERM CAPITAL ALLOCATION PLAN

- Execute on Artesyn integration
- Focus on debt reduction
 - Drive target gross debt to 1.0-1.5x
 - -Achieve in 12-18 months
- Maintain opportunistic share repurchase to offset dilution over time







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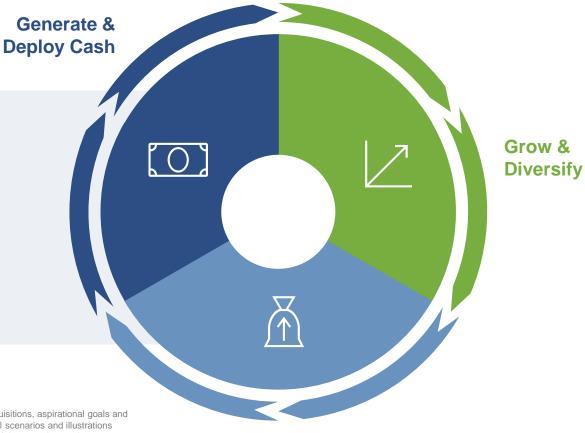
THREE-YEAR ASPIRATIONAL GOALS

Aspirational Goals(1):

• Revenue: > \$1.5B

• Non-GAAP EPS(2): > \$6.50

• ROIC⁽³⁾: > 23%



(1) Please note that hypothetical scenarios regarding revenue growth, EBITDA, EPS, (GAAP or non-GAAP), ROIC, cash generation, acquisitions, aspirational goals and targets and similar statements illustrate various possible outcomes of our different strategies if they are successful. These hypothetical scenarios and illustrations should not be treated as forecasts or projections or financial guidance. We cannot assure you that we will be able to accomplish any of these goals, metrics or opportunities at any point in the future (if at all), all of which are subject to significant risks and uncertainties. Long-term targets generally reflect a 3-4 year time frame, depending on the timing of the semi recovery.

- 2) Refer to the non-GAAP reconciliation for additional detail.
- (3) ROIC calculated as Non-GAAP Operating Income After Tax divided by Invested Capital, which is defined as Total Assets less Cash, Payables, Accrued Expenses



Drive Strong Profitability

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NON-GAAP MEASURES

 Advanced Energy's non-GAAP measures exclude the impact of non-cash related charges such as stock-based compensation and amortization of intangible assets, as well as discontinued operations, minority interest, and non-recurring items such as acquisitionrelated costs and restructuring expenses. The non-GAAP measures are not in accordance with, or an alternative for, similar measures calculated under generally accepted accounting principles and may be different from non-GAAP measures used by other companies. In addition, these non-GAAP measures are not based on any comprehensive set of accounting rules or principles. Advanced Energy believes that these non-GAAP measures provide useful information to management and investors to evaluate business performance without the impacts of certain non-cash charges and other charges which are not part of the company's usual operations. The company uses these non-GAAP measures to assess performance against business objectives, make business decisions, develop budgets, forecast future periods, assess trends and evaluate financial impacts of various scenarios. In addition, management's incentive plans include these non-GAAP measures as criteria for achievements. Additionally, the company believes that these non-GAAP measures, in combination with its financial results calculated in accordance with GAAP, provide investors with additional perspective. While some of the excluded items may be incurred and reflected in the company's GAAP financial results in the foreseeable future, the company believes that the items excluded from certain non-GAAP measures do not accurately reflect the underlying performance of its continuing operations for the period in which they are incurred. The use of non-GAAP measures has limitations in that such measures do not reflect all of the amounts associated with the company's results of operations as determined in accordance with GAAP, and these measures should only be used to evaluate the company's results of operations in conjunction with the corresponding GAAP measures. Please refer to the Form 8-K regarding this presentation furnished today to the Securities and Exchange Commission.



NON-GAAP RECONCILIATION

	Twelve months ended December 31,							
		2015		2016		2017		2018
Revenue	\$	414.8	\$	483.7	\$	671.0	\$	718.9
GAAP Operating Income	\$	106.7	\$	126.9	\$	200.8	\$	171.6
Add back:								
Restructuring Charges		0.2		-		-		4.2
Acquisition-related Costs		-		-		0.2		2.3
Stock-based Compensation		2.8		6.3		12.5		9.7
Amortization of Intangible Assets		4.4		4.2		4.4		5.8
Facility Transition and Relocation Costs		-		-		-		1.8
Non-GAAP Operating Income	\$	114.0	\$	137.4	\$	217.8	\$	195.4
Non-GAAP Operating Margin % of Revenue		27.5%		28.4%		32.5%		27.2%
			Twelve	months	ended De	ecember 3	31,	
		2015		2016		2017	•	2018
GAAP Income from Continuing Operations	\$	83.5	\$	116.9	- <u>-</u>	136.1	\$	147.1
Add back:							•	
Restructuring Charges		0.2		-		-		4.2
Acquisition-related Costs		-		-		0.2		2.3
Stock-based Compensation		2.8		6.3		12.5		9.7
Amortization of Intangible Assets		4.4		4.2		4.4		5.8
Loss on Foreign Exchange Hedge		-		-		3.5		-
Facility Transition and Relocation Costs		-		-		-		1.8
Incremental Expense Associated with Start-up of the Asia Regional Headquarters		-		-		1.1		-
Nonrecurring Tax (Benefit) Expense Associated with Inverter Business		-		-		(33.8)		-
Tax Cuts and Jobs Act Impact		-		-		72.9		5.7
Tax Effect of Non-GAAP Adjustments		(1.6)		(2.9)		(5.3)		(4.6)
Non-GAAP Net Income	\$	89.3	\$	124.6	\$	191.5	\$	172.0
Share Outstanding (Millions)		41.1		40.0		40.2		39.4
Non-GAAP EPS	\$	2.17	\$	3.11	\$	4.77	\$	4.37



NON-GAAP RECONCILIATION

Reconciliation of Non-GAAP measure - operating expenses and operating income, excluding certain

items	Thre	ee Months E	Nine Months Ended			
	Septem	ber 30,	June 30,	Septem	ber 30,	
	2019	19 2018 2019		2019	2018	
Gross profit from continuing operations, as reported	\$ 73,491	\$ 85,539	\$ 64,126	\$ 203,357	\$ 290,419	
Adjustments to gross profit:						
Stock-based compensation	77	76	55	365	576	
Facility expansion and relocation costs	1,342	725	150	1,662	974	
Acquisition-related costs	1,506	158		1,506	158	
Non-GAAP gross profit	76,416	86,498	64,331	206,890	292,127	
Operating expenses from continuing operations, as						
reported	64,101	45,677	53,121	171,171	138,436	
Adjustments:						
Amortization of intangible assets	(3,002)	(1,437)	(1,874)	(6,849)	(3,958)	
Stock-based compensation	(840)	(948)	(883)	(4,688)	(6,885)	
Acquisition-related costs	(6,398)	(705)	(1,531)	(9,440)	(1,310)	
Facility expansion and relocation costs	(223)	(29)	_	(297)	(518)	
Restructuring charges	(152)	(403)	(1,795)	(3,620)	(403)	
Non-GAAP operating expenses	53,486	42,155	47,038	146,277	125,362	
Non-GAAP operating income	\$ 22,930	\$ 44,343	\$ 17,293	\$ 60,613	\$ 166,765	

Reconciliation of Non-GAAP measure - operating expenses and operating income, excluding certain

items	Three	Months En	Nine Months Ended			
	Septembe	er 30,	June 30,	Septembe	er 30,	
	2019	2018	2019	2019	2018	
Gross profit from continuing operations, as reported	42.0 %	49.4 %	47.6 %	45.1 %	51.4 %	
Adjustments to gross profit:						
Stock-based compensation	_	_	_	0.1	0.1	
Facility expansion and relocation costs	0.8	0.5	0.1	0.4	0.2	
Acquisition-related costs	0.8	0.1	_	0.3	_	
Non-GAAP gross profit	43.6	50.0	47.7	45.9	51.7	
Operating expenses from continuing operations, as						
reported	36.6	26.4	39.4	38.0	24.5	
Adjustments:						
Amortization of intangible assets	(1.7)	(0.8)	(1.4)	(1.5)	(0.7)	
Stock-based compensation	(0.5)	(0.6)	(0.7)	(1.0)	(1.2)	
Acquisition-related costs	(3.7)	(0.4)	(1.1)	(2.1)	(0.2)	
Facility expansion and relocation costs	(0.1)	_	_	(0.1)	(0.1)	
Restructuring charges	(0.1)	(0.2)	(1.3)	(0.8)	(0.1)	
Non-GAAP operating expenses	30.5	24.4	34.9	32.5	22.2	
Non-GAAP operating income	13.1 %	25.6 %	12.8 %	13.4 %	29.5 %	

Reconciliation of Non-GAAP measure - income

excluding certain items		Thre	ee N	Ionths E	Nine Months Ended				
	September 30			r 30, June 30,			September 30,		
		2019 2018		2019		2019	2018		
Income from continuing operations, less noncontrolling									
interest, net of income taxes	\$	7,246	\$	35,150	\$	23,362	\$ 45,987	\$ 127,845	
Adjustments:									
Amortization of intangible assets		3,002		1,437		1,874	6,849	3,958	
Acquisition-related costs		7,904		863		1,531	10,946	1,468	
Facility expansion and relocation costs		1,565		754		150	1,959	1,492	
Restructuring charges		152		403		1,795	3,620	403	
Tax Cuts and Jobs Act Impact		_		2,398		_	_	4,251	
Central inverter services business sale		_		_	((14,804)	(14,804)	_	
Acquisition transition services		(29)		_		_	(29)	_	
Tax effect of Non-GAAP adjustments		326	_	(598)		2,536	2,011	(1,145)	
Non-GAAP income, net of income taxes, excluding									
stock-based compensation		20,166		40,407		16,444	56,539	138,272	
Stock-based compensation, net of taxes		702		779		722	3,887	5,716	
Non-GAAP income, net of income taxes	\$	20,868	\$	41,186	\$	17,166	\$ 60,426	\$ 143,988	

Reconciliation of Non-GAAP measure - per share earnings excluding certain items

earnings excluding certain items	Three Months Ended						Nine Months Ended			
		September 30, June				ne 30,	September 30,			
	- 2	2019		2018	2019		2019		2	2018
Diluted earnings per share from continuing operations, as reported Add back (subtract): per share impact of Non-GAAP adjustments, net of	\$	0.19	\$	0.90	\$	0.61	\$	1.20	\$	3.23
tax Non-GAAP per share earnings	\$	0.35	\$	0.15 1.05	\$	(0.16) 0.45	\$	0.37	\$	0.41 3.64



RECONCILIATION OF Q4 2019 GUIDANCE

	Low End		High End
Revenue	\$295M	-	\$325M
Reconciliation of non-GAAP** earnings per sha	are		
GAAP earnings per share	\$0.19	-	\$0.43
Stock-based compensation	\$0.06	-	\$0.05
Amortization of intangible assets	\$0.14	-	\$0.14
Amortization of inventory step-up	\$0.10	-	\$0.13
Restructuring and other	\$0.11	-	\$0.08
Tax effects of excluded items	-\$0.04	-	-\$0.03
Non-GAAP** earnings per share	\$0.56	-	\$0.80

