THOMSON REUTERS STREETEVENTS

EDITED TRANSCRIPT

AEIS - Q3 2018 Advanced Energy Industries Inc Earnings Call

EVENT DATE/TIME: OCTOBER 30, 2018 / 12:30PM GMT

CORPORATE PARTICIPANTS

Paul R. Oldham *Advanced Energy Industries, Inc. - Executive VP & CFO*

Yeuk-Fai Mok *Advanced Energy Industries, Inc. - VP of Strategic Marketing & IR*

Yuval Wasserman *Advanced Energy Industries, Inc. - President, CEO & Director*

CONFERENCE CALL PARTICIPANTS

Amanda Marie Scarnati *Citigroup Inc, Research Division - Semiconductor Consumable Analyst*

Brian Edward Chin *Stifel, Nicolaus & Company, Incorporated, Research Division - Associate*

Mehdi Hosseini *Susquehanna Financial Group, LLLP, Research Division - Senior Analyst*

Pavel S. Molchanov *Raymond James & Associates, Inc., Research Division - Energy Analyst*

Sreekrishnan Sankarnarayanan *Cowen and Company, LLC, Research Division - MD & Senior Research Analyst*

Thomas Robert Diffely *D.A. Davidson & Co., Research Division - MD & Senior Research Analyst*

Weston David Twigg *KeyBanc Capital Markets Inc., Research Division - MD & Senior Research Analyst*

PRESENTATION

Operator

Good day, ladies and gentlemen, and welcome to the Advanced Energy Industries' Third Quarter 2018 Earnings Conference Call. (Operator Instructions) As a reminder, today's conference is being recorded.

I'd now like to introduce your host for today's conference, Mr. Edwin Mok, Vice President of Strategic Marketing and Investors Relations. Sir, please go ahead.

Yeuk-Fai Mok - *Advanced Energy Industries, Inc. - VP of Strategic Marketing & IR*

Thank you, Operator. Good morning, everyone. Welcome to Advanced Energy's Third Quarter 2018 Earnings Conference Call. With me on today's call are Yuval Wasserman, our President and CEO; Paul Oldham, our Executive Vice President and CFO; and Brian Smith, our Director of Investor Relations.

Before we begin, I'd like to mention that AE will be participating at the Wells Fargo Tech Summit and the New York City CEO Summit both in December, and the Needham Growth Conference in January. As all events occur, we will make additional announcements.

And now, let me remind you that today's conference call contains forward-looking statements, including the company's current view of its industry, performance, products, applications and business outlook. These statements are subject to risks and uncertainties that could cause actual results to differ materially and are not guarantees of future performance. Information concerning these risks and uncertainties is contained in our filings with the SEC. All forward-looking statements are based on management's estimates, projections and assumptions as of today, October 30, 2018, and the company assumes no obligation to update them. Aspirational goals and targets discussed on this conference call, or in the presentation material, should not be interpreted in any respect as guidance. Today's call also includes non-GAAP adjusted financial measures, which exclude the effects of discontinued operations, stock compensation expenses, amortization of intangibles, restructuring charges, acquisition-related costs and other one-time items. Reconciliation between GAAP and non-GAAP measures are contained in yesterday's earnings release, which is available on our Investor Relations page of our website. We'll be referring to earnings slides posted on the Investor section of our website as well.

With that, let me pass the call to Advanced Energy's President and CEO, Yuval Wasserman. Yuval?

Yuval Wasserman - *Advanced Energy Industries, Inc. - President, CEO & Director*

Thank you, Edwin. Good morning, everyone, and thank you for joining us for our third quarter earnings conference call.

Our third quarter results reflected the dynamic demand environment in the semiconductor market. Both our industrial and service revenues again achieved record high, partially offsetting lower semi revenues and resulting in a total revenue decline of 2% year-over-year. In addition, we advanced our diversification growth strategy by completing the acquisition of LumaSense Technologies, expanding our footprint in several industrial technology markets. Despite the near-term challenges in the quarter, we delivered solid financial results, exceeding the midpoint of our revenue and EPS targets with adjusted operating margins of 26%.

In semiconductors, the impact of delays in memory expansion by large chip makers drove our semi revenues to decline sequentially and year-over-year. Further, we expect our semi revenues to decline again in the current quarter, as equipment OEMs reduce their finished goods inventories. Despite the near-term weakness, we continue to believe this does represent a normal and modest digestion period within the semiconductor industry with equipment investment impacted largely by yield, technology transition and IC device ASPs. The long-term growth drivers for our semi business, including both the broad underlying demand for semiconductors and the continued increase in the dependence on power supply technology, resulting in growing power content in etch, deposition, and other production processes remain intact.

The pace of innovation in semiconductor manufacturing continues at high velocity. Our customers come to AE for solutions to the toughest technical challenges in scaling both leading-edge logic and memory devices. This not only spurs growth of the overall power market, but also creates opportunities to gain market share as we look to displace competitors with our differentiated technology. As a supplier of critical technologies and plasma-based etch and deposition processes, we see increased adoption of our highest-performance power supplies and matching networks.

This quarter, we won multiple new designs, including one major win for an application in advanced memory where we displaced the incumbent supplier in new technology. Our commitment to innovation and focused engineering investment allows us to enable our customers as they develop the next generation of semiconductor manufacturing technology and process.

In our industrial markets, we had another strong quarter. Revenues were once again at the record high in Q3, growing 35% year-over-year. Excluding the contribution of acquisitions, industrial grew 15% year-over-year. This demand came from multiple markets and across our product portfolio.

In thin films, we had a significant shipment to a solar PV manufacturer we secured in the second quarter, which more than offset the weakness in a general PV production equipment market. We also saw flat panel display investment in China for both OLED and large-screen capacities, while demand for hard industrial coating for both consumer and automotive applications moderated in the quarter. More importantly, we won multiple designs during the quarter, with new applications in glass, hard coatings and display.

Specialty Power saw strength in power control and thermal management for thin film batteries, PV solar, glass and steel production. Last week, at the Glasstec Trade Fair, we published a paper with our partner Siemens on our joint efforts on advanced process control for TFT glass production, validating our success in this area. We also had multiple design wins in the medical equipment market, including one powering instruments for geomapping and a second one for electroporation therapy.

Overall, we expect our industrial business in the fourth quarter to grow year-over-year, but decline sequentially following a record third quarter with incremental revenues from LumaSense partially offsetting the typical fourth quarter seasonal decline in our core industrial markets.

Acquisition has been an important part of our revenue growth strategy. During the quarter, we took a significant step forward by closing the acquisition of LumaSense Technologies, our largest transaction so far. LumaSense greatly expands our offering around critical measurement and sensing technologies, including barometry, temperature control and process material metrology solutions, and broadens our exposure to power-intensive industrial applications.

We are actively integrating our 4 acquisitions we completed over the last 5 quarters, and we have already started to make progress in driving integrated product offering. Combined, these businesses generated over $90 million of annualized revenue in Q3 on a pro forma basis. With additional revenue and cost synergies coming, we continue to anticipate solid returns for these acquisitions. We remain committed to our stringent M&A process and are confident we will add more inorganic revenues in the future.

Our service business hit another record quarter, increasing 17% year-over-year. In addition to an expanding install base, we are strategically growing this business with programs in product refurbishment, retrofits, upgrades and regional expansion. Looking forward, we expect service to continue to grow at greater than 10% CAGR, as we gain share from third-party providers and expand our engineering service solutions.

In summary, we expect capacity digestion in semiconductor to create headwinds for our semi business in the current quarter. Industrial sales in the fourth quarter should be down sequentially, while our service revenue should reach yet another record high. Despite the pause in the semiconductor market, we continue to expect overall revenue growth in both 2018 and 2019 for Advanced Energy.

While we are taking some steps in the near term to manage our cost structure and accelerate integration of acquisitions, we will continue to invest in developing our core technologies, products and channels to expand our leadership.

In our core RF and DC power business, our market share remains more than double that of the next-biggest competitor. With a solid pipeline of our precision power innovations and our deep applications knowledge, we will stay at the forefront of leading-edge technology advances. Leveraging our financial model and cash position, we have an active acquisition funnel targeting to take our business to the next level. Our drive to achieve our stated aspirational targets remains in full force.

I'd like to thank our customers, shareholders, partners and our valued employees for your support. I look forward to seeing many of you in the upcoming quarter.

With that, let me turn the call over the Paul.

Paul R. Oldham - *Advanced Energy Industries, Inc. - Executive VP & CFO*

Thank you, Yuval, and good morning, everyone. In the third quarter, we continued to execute on our strategy to grow and diversify the company, while feeling the impact of the near-term pause in capital spending by semiconductor manufacturers.

Total revenue was $173 million, down 12% from last quarter's record levels, but just 2% from a year ago. Both industrial and service revenues achieved record levels again in Q3, partially offsetting the decline in the semi market. Despite the overall decline in Q3, year-to-date revenues are up 15% with 6% growth in semi and 46% growth in our industrial products. The LumaSense acquisition, which closed at the beginning of September, added $5.6 million.

Looking at sales by market, semiconductor revenue in the quarter was $96.4 million, down 24% from last quarter and 17% year-over-year. The impact was broad-based and not from a single customer or product area and was the result of the capital spending delays we have already discussed. This delayed investment will also affect our Q4 semi revenues and may extend into early 2019 as our customers reduce their finished goods inventories.

Industrial revenues saw significant growth and reached a record $48.5 million, up 16% from the second quarter and 35% from last year. Even excluding the impact of LumaSense, it still would have been a record quarter with strength from our large win in PV solar as well as glass and thermal applications. Looking forward, we expect industrial revenues in Q4 to be seasonally lower, in line with historical trends and up year-over-year. Longer term, we continue to expect our industrial products to grow in the mid-teens range.

Service revenue for the quarter was also a record, at $28.2 million, up 5% from the second quarter and 17% from last year. As industrial and service continue to grow and make up a larger portion of total revenues, they will both boost our overall growth rate and help to offset fluctuations in our semiconductor market.

Gross margin for the third quarter was 49.4%. On a non-GAAP basis, gross margin was 50% compared to 51.8% last quarter, largely due to lower revenues and unfavorable product mix. We also saw higher warranty due to timing of repairs and expedited costs early in the quarter. Looking forward, in the fourth quarter, we expect adjusted gross margins to be in the same range on lower revenues.

GAAP operating expenses in Q3 were $45.7 million, increased by about $450,000 over Q2, primarily as a result of the addition of LumaSense. Non-GAAP operating expenses from continuing operations were $42.2 million or 24.4% of revenue. This compares to $41.9 million or 21.3% in the prior quarter. Excluding the addition of LumaSense, operating expenses decreased $2 million or about 5%, primarily the result of lower headcount and temporary actions we are taking to control costs. GAAP operating expenses also included approximately $400,000 of restructuring expense.

Looking forward, we expect to incur $3 million to $6 million of additional restructuring expense in the fourth quarter, a result of actions we are putting in place to optimize our manufacturing footprint, improve efficiencies and realize synergies related to our acquisitions.

In addition, during the fourth quarter, we will be taking a number of temporary actions to reduce cost, including reducing discretionary spending and taking additional time off, particularly in manufacturing consistent with our lower volumes. We believe these actions will allow us to moderate spending while continuing to invest in our strategic efforts to drive growth. Despite a full quarter of LumaSense expense, we expect non-GAAP operating expenses in the fourth quarter to only be up $3 million to $4 million, with sequentially lower cost in native AE.

GAAP operating margin for the quarter was 23% compared to 28.6% last quarter and 29.2% in the same period last year. Non-GAAP operating margin was 25.6% compared to 30.5% in the previous quarter and 31.9% a year ago. Although LumaSense contributed positively to operating income, it negatively impacted operating margins by 50 basis points. For the fourth quarter, we expect this impact to be 150 to 200 basis points on a full quarter of LumaSense revenue and expenses.

Our GAAP tax rate for the third quarter was 12.7%, primarily the result of expiration of the statute of limitations on historical exposures and implementation of our tax-planning strategies. In addition, as part of the adoption of U.S. tax reform, we updated our assertion regarding permanent reinvestment to foreign earnings, which resulted in a charge of approximately $2.4 million. Excluding this item, the non-GAAP tax rate was 8%. We expect our tax rate in Q4 to be in the very low double-digits, reflecting some of these same benefits. Longer-term, we expect the non-GAAP tax rate to be in the 15% to 16% range.

GAAP earnings per share from continuing operations for the third quarter were $0.90 compared to $1.17 last quarter and $2.09 last year, which included a nonrecurring tax benefit of $40 million associated with the closure of the solar inverter business. Non-GAAP EPS for the quarter was $1.05 compared to $1.25 in the second quarter and $1.19 a year ago. LumaSense was accretive by approximately $0.01 per share to non-GAAP earnings.

Turning to the balance sheet, in the third quarter, we generated $31 million of cash from continuing operations. We invested approximately $85 million of net cash on the LumaSense acquisition and $31 million to repurchase 533,000 shares of stock. In addition, since the beginning of Q4, we repurchased an additional $11 million worth of stock, bringing our year-to-date purchases to approximately $80 million for 1.35 million shares. Since the inception of our program in 2015, we have spent approximately $160 million to repurchase 3.5 million shares.

Our cash and marketable securities balance at quarter end was $342 million.

Net working capital increased during the quarter. Days sales outstanding increased to 57 days compared to 49 days last quarter largely due to geographic mix and the addition of LumaSense, which added about $8 million of receivables.

Days payable declined from 55 days to 47 days, primarily due to the timing of purchases and payments in the quarter.

Inventory turns decreased from 3.5 to 3.2 times on roughly flat inventory levels. However, excluding the addition of LumaSense, inventory declined by about $10 million. We expect inventory to further decline from these levels in the fourth quarter.

Given the current market conditions and order levels, we expect revenues for the fourth quarter to be between $150 million to $160 million, and non-GAAP earnings per share between $0.70 and $0.80.

In summary, we were able to deliver solid profitability in a down market, and are prepared to see leveraged growth in earnings when the market recovers. In the near term, we are controlling discretionary spending while maintaining the core investments that will protect our competitive advantages and fuel long-term growth. We remain bullish about the long-term growth potential and drivers in our core markets, and we continue to innovate to maintain our leadership position. Further, we will use our balance sheet to accelerate growth and expand our addressable markets.

With that, let me turn it over to the operator for questions. Operator?

QUESTIONS AND ANSWERS

Operator

(Operator Instructions) Our first question comes from Krish Sankar with Cowen and Company.

Sreekrishnan Sankarnarayanan - *Cowen and Company, LLC, Research Division - MD & Senior Research Analyst*

I had a couple of them. Yuval or Paul, thanks for the color on Q4 and into Q1. So is it fair to assume in Q4 sequentially, industrials is down in the mid-single-digits and semis is down double-digits is the right way to think about it or --

---

Yuval Wasserman - *Advanced Energy Industries, Inc. - President, CEO & Director*

That's the right way to think about it, Krish, and just to reiterate, we see the decline in semi in line with peer companies in the market, and we see the industrial decline in Q4 as a seasonal decline we saw during the last 3 years in Q4 also more pronounced this time. We're coming from very strong Q2, right, so -- I'm sorry -- 3. So the combination of seasonal decline in industrial and in line with semi decline is a result of that as you said.

Sreekrishnan Sankarnarayanan - *Cowen and Company, LLC, Research Division - MD & Senior Research Analyst*

Got it, got it, that's very helpful. And then I think, Yuval, in your prepared comments, you did highlight that the weakness should continue into Q1. So I'm curious is that -- given improved facility, your customers think things are still going to be bigger, the more inventory dilution going on with your customers; or what -- the viewpoint into Q1, a quarter out?

Yuval Wasserman - *Advanced Energy Industries, Inc. - President, CEO & Director*

Yes, I'm not sure if we said that's going to be V-shape, I'm sorry, Krish, but we see that -- this decline in Q4 as a result of our customers' disposal of finish with the inventories mainly. We don't -- we didn't forecast Q1 even directionally; we had obviously, uncertainty regarding to our customers' capabilities to dispose of all the finished goods inventories. As you know, we typically lag about a quarter behind our customers.

Sreekrishnan Sankarnarayanan - *Cowen and Company, LLC, Research Division - MD & Senior Research Analyst*

Got it, got it. And then two other quick questions -- how much was AMAT and LAM approximate sales in Q3?

Yuval Wasserman - *Advanced Energy Industries, Inc. - President, CEO & Director*

Just a second. Paul?

Paul R. Oldham - *Advanced Energy Industries, Inc. - Executive VP & CFO*

Yes, AMAT was about $60 million and LAM was about $20 million.

Sreekrishnan Sankarnarayanan - *Cowen and Company, LLC, Research Division - MD & Senior Research Analyst*

Got it, right. And then a final question -- you kind of alluded to the fact about a disciplined M&A process. And in the past, you guys have been mostly bolt-on M&A especially in the nonsemi side. And your biggest year has done more, I would say, bolt acquisitions. I'm curious, what is your view on transformational M&A, and what's this doing bolt-ons looking at?

Yuval Wasserman - *Advanced Energy Industries, Inc. - President, CEO & Director*

So it's a great question, Krish, thank you. We do entertain a funnel of potential targets and we have both large and small tuck-in targets. Our tuck-in targets are not sporadic; they're more of a rollup strategy. As you recall, we have a lot of companies in the high-voltage power supply arena. LumaSense brings the area of sensors and metrology to our portfolio, very in line with our (inaudible) product line. Our target acquisitions have both small-size acquisitions, but also large-size targets. As we continue to pursue transformational acquisitions, we will continue to do tuck-ins and rollup strategies.

Just to reiterate, over the last 5 quarters, we have added to our revenue incremental more than $90 million of revenue.

Paul R. Oldham - *Advanced Energy Industries, Inc. - Executive VP & CFO*

Annualized.

Yuval Wasserman - *Advanced Energy Industries, Inc. - President, CEO & Director*

Annualized, on an annualized base, right? And all of these acquisitions are accretive, successful, growing and delivering cash and profit. So we're very pleased with the strategy, but at the same time, we continue to look at sizeable transformational acquisitions, for which we're willing to lever the company. However, we're extremely disciplined about the approach and want to make sure that we will be -- we do the right things.

Operator

Our next question comes from Weston Twigg with KeyBanc Capital.

Our next question comes from Amanda Scarnati with Citi.

Amanda Marie Scarnati - *Citigroup Inc, Research Division - Semiconductor Consumable Analyst*

Just a quick question on the semiconductor business and the design win that you saw and the advanced memory application. Can you just expand upon that a little bit, and when you expect to start to see revenue generated from that design win? And what sort of momentum you have in the advanced memory market at this point?

Yuval Wasserman - *Advanced Energy Industries, Inc. - President, CEO & Director*

This specific design win is in dielectric deposition, and it's meaningful. We are displacing an incumbent. I can't disclose the amount of the business related to that, but we're very excited about this design win. Just to reiterate, we continue to pursue design wins both in our core application space -- as you know, it's conductor etch -- but also in adjacent applications like the Olympic EDGE deposition and other plasma processes.

Amanda Marie Scarnati - *Citigroup Inc, Research Division - Semiconductor Consumable Analyst*

Okay. And then on the industrial side of the business, with the sequential decline next quarter, is LumaSense also expected to decline on a sequential basis? Is that sort of the normal seasonality for them, or is there still sort of growth coming from LumaSense on, say, a like-for-like basis for them?

Paul R. Oldham - *Advanced Energy Industries, Inc. - Executive VP & CFO*

Yes, thanks, Amanda. It's obviously still a business that's in transition for us, and so what we'd expect to see there is similar to the run rate. However, as you recall, about 25% of the business, it sells into the semi market and it's going to be impacted by the same factors we see in the rest of our semi business.

Amanda Marie Scarnati - *Citigroup Inc, Research Division - Semiconductor Consumable Analyst*

Okay. And then the last question I have is just on operating margins. With a couple of quarters of decline to operating margins, what are you -- or in revenue, and then operating margins, what are you doing to kind of help support growth in R&D, while still trying to maintain moderate operating margins?

Yuval Wasserman - *Advanced Energy Industries, Inc. - President, CEO & Director*

So two things, Amanda -- we continue to invest in some critical programs that are very strategic to our future in cooperation with key customers, as we work with them to develop the next generation technology for semi and industrial applications. That investment continues even in a down market. It's a strategic investment for the company. At the same time, we are working on the operational side and the discretionary spending side to react to the decline in the business. But also as you recall, we had 4 companies acquired over the last 5 quarters, and we're in the process of integrating those acquired entities into the company.

And it's a process, right; it's a process that involves restructuring, consolidation, et cetera. So that's part of the investment we're making. So in one hand, we continue to invest in strategic technology development programs, and at the same time, we continue to adjust the spending and structure to accommodate the new structure of the company and the decline in the revenue.

Paul R. Oldham - *Advanced Energy Industries, Inc. - Executive VP & CFO*

Yes, and I'll just add to that, Amanda. We did announce a restructuring program as part of our prepared remarks, but this is really aimed at improving the efficiency of the company and driving some of the integration synergies, as you've all described. We continue to be completely committed to our strategic investments and don't see any reduction in those.

Operator

Our next question comes from Patrick Ho with Stifel.

Brian Edward Chin - *Stifel, Nicolaus & Company, Incorporated, Research Division - Associate*

This is Brian Chin on for Patrick. First off, could you provide the LumaSense revenue contribution in 3Q and kind of what you have embedded in the 4Q guide? And for 3Q, could you also break down what was in semi versus nonsemi?

Paul R. Oldham - *Advanced Energy Industries, Inc. - Executive VP & CFO*

Yes, Brian, thanks a lot. So the amount of LumaSense in the third quarter was $5.6 million and it was a little over $1 million in semi in the balance in industrial, so not that different of a mix than we talked about previously. As I mentioned, in the fourth quarter, we're not breaking that out specifically, but the general run rate holds with, like I said, the semi business is going to experience some of the same factors that we're seeing in the broader market. It sells into the same markets and it's seeing some of the same factors.

Brian Edward Chin - *Stifel, Nicolaus & Company, Incorporated, Research Division - Associate*

Okay. All very helpful. I believe also you guided 4Q gross margin I believe roughly flat Q-on-Q, which is impressive given that the client volume in a full quarter of LumaSense was kind of serious with a substantial manufacturing footprint in China. Are you not seeing any drag on margins due to the current tariff environment, or how are you able to mitigate these impacts?

Paul R. Oldham - *Advanced Energy Industries, Inc. - Executive VP & CFO*

Yes, that's a good question. When you look at tariffs for us, we don't have a lot of direct exposure to tariffs because we don't import a lot of parts directly to the U.S. We do manufacture in China; we also have manufacturing in other locations. But if you look with respect to China, as we export [some] products from China, mostly our customers buy those products directly. And frankly, we've been working very closely with them to mitigate any impacts to their business. And we think overall, that impact is going to be nominal because there's a number of both operational and commercial things that we can do to help mitigate that impact. The amount that we do use internally is largely for service, where we would bring the part in from China to do specific repairs in the U.S., and that would be for U.S. and its customers. So it's minimal, the impact on tariffs for us in China.

Relative to our manufacturing footprint, as you know, we do have a world-class manufacturing facility in China, and that does give us, we think, a lot of advantages from a flexibility perspective and from an overall cost perspective. And part of our actions is to continue to optimize our manufacturing footprint globally.

Brian Edward Chin - *Stifel, Nicolaus & Company, Incorporated, Research Division - Associate*

Got it, very helpful. Maybe one last question -- just doubling back in terms of the semi customer inventory work-down commentary, which echoes other critical subsystem suppliers. Even though it's difficult to call for a turn-up in the business right now in terms of visibility, are you also seeing a near term at least stabilization in the ordering rate out of that business, which I...

Yuval Wasserman - *Advanced Energy Industries, Inc. - President, CEO & Director*

Yes, we -- right now, we cannot give you any guidance towards Q1 or even directionally. All of our customers are working through their own shipment from finished good inventory. Our visibility is limited and we cannot right now forecast Q1.

Operator

Our next question comes Mehdi Hosseini with SIG.

Mehdi Hosseini - *Susquehanna Financial Group, LLLP, Research Division - Senior Analyst*

Yes. Paul, I look at your days of inventory, it's almost 2 to 3-year high, and I assume some of it has to do with the number of acquisitions over the past several quarters. When do you think your inventory is going to trend down and to what extent? how should we think about improving free cash flows just as you reduce the inventory? And again, I'm assuming that a big chunk of this step-up has to do with the acquisitions. And I have a follow-up.

Paul R. Oldham - *Advanced Energy Industries, Inc. - Executive VP & CFO*

Yes, that's a good question, Mehdi. Thank you. So if you look at our inventory for actually Q3, it was about flat with Q2. But underneath that, we added $10 million of acquired inventory from LumaSense and reduced our, I'll say, our native inventory by basically that same amount. So we did see a meaningful reduction and we expect to continue to see a roughly similar reduction in Q4. If you look at the overall acquired inventory, it's in the mid-teens of millions of dollars when you look over this full year. When you add in that LumaSense, we only had the revenues for a quarter, then that's going to clearly impact the metric of either days of inventory or inventory turns. So we'll see some natural pickup in the fourth quarter because both inventories will trend lower and we'll have a full quarter of LumaSense sales. But the denominator matters here, and in a low environment, a lower revenue environment, then the metrics are going to look a little bit [important].

Certainly, as our revenues recover, and we work out inventory, our goal is to see those inventory turns and days come back into a normalized range. And that will probably take 2 or 3 quarters to work its way through, but from a pure cash perspective, we'd expect to continue to see inventories work their way down from here just like they did last quarter.

Mehdi Hosseini - *Susquehanna Financial Group, LLLP, Research Division - Senior Analyst*

Got you. And a question for Yuval. Of course, everyone is trying to better understand how your key customers in the semi are coming back, and you have the questions about Q1, but I'm going to rephrase the question a different way. Do you think your customers are going to be focusing on managing debt inventory and they're going to wait and gain confidence in the rebound? Or are they going to sell inventory because they feel so good in their core business? And even if their business is not going to pick up until the second half, they're going to step over and build inventory as they gauge pickup in shipment? In other words, how do you see your customers' inventory management, because they all sounded very constructive and confident that there's going to be a rebound in shipment driven by memory and logic. And I don't get that confidence from you.

Yuval Wasserman - *Advanced Energy Industries, Inc. - President, CEO & Director*

So maybe -- I honestly cannot comment about our customers' inventory levels and how they manage our inventories. The one thing that we all need to understand, there is not just having inventory with machines, finished good in boxes; it's also a change in product mix and customer mix that happened over the last 2 quarters. So the way that they dispose of their equipment depends on which end customers is investing when, and which IC technology is being invested upon a -- memory and logic, DRAM or NAND. So that mix affect the way that they manage their finished good inventory. So from our perspective, you all need to understand that because most customers have just-in-time relationship with us, they pull our products when they need our products to finish the building of their finished good machines.

So the inventory that they have right now is an inventory not of AE raw, but of their own finished good machines that could be on the floor or in boxes, right? And if they ship those products out to the market, they will basically pull products from our inventory so -- and that's why I said we lag a little bit behind them, and until they finish addressing the mix change that they have, and they finish with the inventory per application that they have, we will basically lag behind.

Mehdi Hosseini - *Susquehanna Financial Group, LLLP, Research Division - Senior Analyst*

It's actually very helpful. Just one follow-up to that. How are you thinking about your overall overhead? I'm assuming that there's is some commonality in your overhead between semiconductor and industrial. But as you think about the leverage following -- operating leverage following these recent acquisitions, is there a minimum threshold in semiconductor revenue that you're focusing on beyond which you would take a more drastic action?

Paul R. Oldham - *Advanced Energy Industries, Inc. - Executive VP & CFO*

Yes, it's a good question, Mehdi. As you recall, we did announce some restructuring costs. That goes largely to continuing to consolidate the acquisitions we've made and improve efficiencies. And I'll say that manufacturing that overhead is common to both our industrial and our semiconductor businesses. And as you know, many of the, I'll say, semiconductor-like products actually sell into industrial applications for thin film, so there's a lot of overlap and there's a lot of commonality. And we think of it as kind of as one business serving these different markets. So we are taking actions to reduce near-term cost, but remember, we, in our prepared remarks, said although it's hard to predict exactly the quarter -- and I know there's been a lot of questions about that -- we continue to feel confident that this is a temporary pause in semiconductor investments, and have a lot of confidence in the underlying drivers in the market.

And as a result of that, we're going to continue to invest in the strategic elements of our semi business because we believe it will, in fact, bounce around these levels, but then it will grow. And as it begins to grow, we're going to see significant leverage in our business. In fact, we've historically seen 40% to 50% leverage as sales have grown. We're going to see that same leverage once we work our way through this temporary pause in semi, and we'll see a lot of acceleration on EPS if that occurs.

Yuval Wasserman - *Advanced Energy Industries, Inc. - President, CEO & Director*

If I may add to that, maybe in spite of this temporary pause in semi, we need to all remember that 2018 is a growth year for Advanced Energy, and we expect 2019 to be a growth year for Advanced Energy in spite of that temporary pause in semi.

Operator

Our next question comes from Tom Diffely with D.A. Davidson.

Thomas Robert Diffely - *D.A. Davidson & Co., Research Division - MD & Senior Research Analyst*

Maybe just one more on the inventory side. Is there any way to quantify what's the impact of the finished goods just for this versus the end market demand for you, or do not have that level of visibility?

Yuval Wasserman - *Advanced Energy Industries, Inc. - President, CEO & Director*

We don't have that level of visibility. And also, Tom, we cannot even analyze our customers' business for you. So it's a transition that happens in the market. It involves demand changes, especially in mix and also shipping from finished good inventories of our customers that already happened. And the question is when they will resume the ramp of demand for our products is just a question of timing.

Thomas Robert Diffely - *D.A. Davidson & Co., Research Division - MD & Senior Research Analyst*

Yes, and there's no reason to believe that when that ramp starts again, the inverse happens where they have to kind of build finished goods along the way, and you would grow faster than them during that period of time?

Yuval Wasserman - *Advanced Energy Industries, Inc. - President, CEO & Director*

Well, it's a good question. And because of the JIT structure of the relationship we have with them, we have the flexibility and the agility to respond to demand changes, both in volume and mix very quickly.

Thomas Robert Diffely - *D.A. Davidson & Co., Research Division - MD & Senior Research Analyst*

Yes, okay. And this is different than what we saw a couple of cycles ago where you would actually are being -- hold inventory and not just the time as just they would hold inventory. So it's a less of an impact this time around than it was, say, 2 cycles ago?

Yuval Wasserman - *Advanced Energy Industries, Inc. - President, CEO & Director*

I agree with that, yes.

Thomas Robert Diffely - *D.A. Davidson & Co., Research Division - MD & Senior Research Analyst*

Okay. And then the main question though is on the service side. What is the typical warranty of your products, and when does it come off warranty and when does it become eligible for service? I'm just curious about the large slug of business (inaudible) a couple of years.

Yuval Wasserman - *Advanced Energy Industries, Inc. - President, CEO & Director*

Yes, Tom, it really depends on the product and on the relationship, contractual relationship, we have with customers. So I would say, it's between 1 to 3 years, depends on --

---

Thomas Robert Diffely - *D.A. Davidson & Co., Research Division - MD & Senior Research Analyst*

We still --

Yuval Wasserman - *Advanced Energy Industries, Inc. - President, CEO & Director*

Go ahead.

Thomas Robert Diffely - *D.A. Davidson & Co., Research Division - MD & Senior Research Analyst*

So we still haven't seen the kind of the big slug of service increase from what's been the big business the last couple of years?

Yuval Wasserman - *Advanced Energy Industries, Inc. - President, CEO & Director*

You're spot on. Because we expect to see -- as you know that over the last 2 or 3 years, the installed base grew significantly. And we expect to see the service revenue benefit from that incremental increase in the installed base to be realized within the next few quarters.

Operator

Our next question comes from Pavel Molchanov with Raymond James.

Pavel S. Molchanov - *Raymond James & Associates, Inc., Research Division - Energy Analyst*

The last time you had a down quarter in semi cap was back in Q4 of 2015. And at the time, it was a V-shaped recovery right afterwards. When you compare kind of current industry dynamics versus 3 years ago, just thematically, can you compare and contrast how they're similar and how they're different?

Yuval Wasserman - *Advanced Energy Industries, Inc. - President, CEO & Director*

Well, Pavel, as we said during the last earnings call, we do not expect the recovery to be a V-shape this time. We said it'll take longer; it could be more moderate. In a -- the fact is it's really a different industry compared to the last cycle. In terms of consolidation of the industry, the number the key players, the key products, the migration to 3D technology, it's a different industry, right? So it's hard to compare, and as we said earlier, we do not expect to see a V-shaped recovery. Just a reminder, back in 2016, wafer fab equipment business industry was $35 billion. And right now, we're talking about a much bigger industry.

Pavel S. Molchanov - *Raymond James & Associates, Inc., Research Division - Energy Analyst*

Right. You talked about potentially levering up if you see the right acquisition target. Given that your stock is multiyear lows at this point, would you also be willing to lever up to meaningfully accelerate share repurchases?

Paul R. Oldham - *Advanced Energy Industries, Inc. - Executive VP & CFO*

Yes, it's a good question, Mehdi (sic). As you know --

Yuval Wasserman - *Advanced Energy Industries, Inc. - President, CEO & Director*

Pavel.

Paul R. Oldham - *Advanced Energy Industries, Inc. - Executive VP & CFO*

Oh, I'm sorry, Pavel. As you know, our primary allocation of capital is to grow the company. We've said 70% roughly as a guideline is targeted to grow the company primarily through acquisition. And so we continue to believe that is the best path to create long-term value for our shareholders. We've also been active on our share repurchase program and you can see that in the numbers. And so it is a balance, but our view is we would lever the company to grow the company, not necessarily to change the capital structure at this point.

Yuval Wasserman - *Advanced Energy Industries, Inc. - President, CEO & Director*

Pavel, we continue to also [be flow] cash in investing in our future technology and product portfolio. We invested capital in new labs, high-technology labs, in the Bay Area. We expanded our laboratory footprint around the world. We are investing in core technologies, both organically and inorganically, and we believe some of those unique design wins in technology will accelerate the growth in 2019.

Operator

Our next question comes from Weston Twigg with KeyBanc Capital.

Weston David Twigg - *KeyBanc Capital Markets Inc., Research Division - MD & Senior Research Analyst*

I'm sorry about that earlier. So one question I have is just on the industrial side, that sounds pretty good if you're talking down just seasonally in Q4. I'm wondering if heading into 2019 at all, you're seeing any increasing risk related to, say, weakening demand in China or autos, or any of the other broader macro indicators that we're seeing in related markets?

Yuval Wasserman - *Advanced Energy Industries, Inc. - President, CEO & Director*

We don't see that, Wes. In fact, we have some new design wins, both in what we call hard coating applications and also medical and life science applications that we believe will be sustainable and will not be affected by temporary either geopolitical or GDP-related fluctuations. As we said earlier, our Q4 decline in the industrial business is seasonal just like the previous 3 years. The good news is that every Q4 is higher than the previous Q4. So we continue to grow our industrial business with that seasonal decline in the fourth quarter of every year. And we basically stand behind our goal to continue to grow this business at mid-teens CAGR and we haven't changed that target.

Weston David Twigg - *KeyBanc Capital Markets Inc., Research Division - MD & Senior Research Analyst*

Okay. That's helpful. And then just I guess related, you talked about the fact that you're confident this is a temporary pause in the semi side of your business. Can you give us a feeling of, particularly with the fabs, what kind of customer conversations you're having? Maybe I don't know how much conversation you have with fab owners, but any commentary that would help us with the conviction that this is a temporary pause?

Yuval Wasserman - *Advanced Energy Industries, Inc. - President, CEO & Director*

Well, I'll say a few things. Number one, there are many assets are being built around the world that are basically waiting to be equipped with equipment. We have recent information about Intel is going to start the high volume manufacturing of the 10-nanometer devices, which is new news and good news. We look at other areas that we believe there is a pending investment in capacity, right? So we strongly believe that the long-term underlying demand drivers for the business are intact and strong. For that reason, we believe, as we talk to our customers and also forecasters and end users, that we're talking about a temporary digestion.

Going back to what we said earlier, just a few quarters ago, everybody celebrated the semi WFE business being $35 billion. Now we're in a new normal, in the new normal, as it were, of $45 million to $50 million. We are operating in a growing industry and we expect the long-term viability and growth of this industry to be intact.

Operator

I'm showing no further questions in queue at this time. I'd like to turn the call back to Mr. Wasserman for closing remarks.

Yuval Wasserman - *Advanced Energy Industries, Inc. - President, CEO & Director*

Thanks, everybody, for joining us today; obviously, a challenging time for the semi industry. We are very excited about the future. We continue to drive design wins. We have new technologies and products in the pipeline that will spur growth and leadership, and we're committed to continue to invest in those strategic areas. We're looking forward to seeing many of you in the next quarter. Thank you.

Operator

Ladies and gentlemen, thank you for your participation in today's conference. This concludes the program and you may now disconnect. Everyone have a great day.