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ROG - Q2 2018 Rogers Corp Earnings Call

EVENT DATE/TIME: JULY 31, 2018 / 9:00PM GMT

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PRESENTATION

Operator

Good day. My name is Brandon, and I will be your conference operator today. At this time, I would like to welcome everyone to the 2018 Second Quarter Conference Call. (Operator Instructions) I would now turn the call over to your host, Mr. Jack Monti, Director of Investor Relations. Sir, you may begin your conference.

Jack Monti - *Rogers Corporation - Director of IR*

Thank you, Brandon, and thanks so much, everyone, for joining Rogers' Second Quarter 2018 Earnings Call. To follow along with the slide presentation, please see the Investors section of our website.

Turning to Slide 2. We have a disclosure on forward-looking statements. During the call, we will be making certain forward-looking statements subject to a number of risks and uncertainties which may cause actual results to differ materially versus today's outlook. In addition, some of the financial metrics discussed will be on a non-GAAP basis, which management believes better reflects the underlying core operating performance of the business.

Turning to Slide 3. It's my pleasure to introduce Rogers' management team. Bruce Hoechner, President and CEO, is joined by Ram Mayampurath, Vice President Financial Planning and Analysis, and Bob Daigle, SVP and CTO. I will now turn the call over to Bruce.

Bruce D. Hoechner - *Rogers Corporation - President, CEO & Director*

Thanks, Jack. Good afternoon, everyone, and thank you for joining us on today's call. In Q2, Rogers delivered revenues of $215 million, an increase of 7% including currency effect, over Q2 2017 and at the midpoint of our previously announced guidance. Revenue performance was due to strong demand in eMobility applications and antenna applications for 4.5G and 5G wireless infrastructure.

These results were partially offset by weaker demand for 4G LTE power amplifier applications, which is being impacted by the market's transition from 4G to 5G. Also during the quarter, we completed our diligence for our acquisition of Griswold, LLC, which closed in early July.

Q2 gross margin was 35.7%. Adjusted EPS was $1.19. While we have made progress during the quarter in a number of areas, we are acutely aware of our shortfalls in Q2. Actions are in place to improve our results moving forward, and as we progress through the second half of the year, we are confident in our ability to improve both the top line and margins.

Our core operations ran well during the quarter and continue to improve in line with the actions I detailed in last quarter's call. Pricing programs to recover increased raw material costs had a positive impact in Q2, with the full pricing benefits to be realized in Q3. However, margins were below our expectations due to greater-than-anticipated near-term costs associated with our continued investments to support our growth strategy, including multi-site product qualifications, manufacturing site consolidations and higher costs associated with maintaining underutilized capacity in anticipation of significantly increased demand in core markets. Ram will cover the details of our performance shortly.

As we go through today's call, you will hear about the strong demand that is projected in our key growth drivers of advanced connectivity and advanced mobility. Opportunities for growth in markets such as 5G, EV/HEV and ADAS are driving our capacity expansion plans. It is a key imperative for Rogers to maintain its market leadership position by ensuring capacity is ready when our customers need it. While these expansion plans are having a short-term negative impact on margins, we are positioning Rogers now to fully benefit from the projected substantial growth in these areas.

Please turn to Slide 5. We remain focused on our growth strategy, which serves as a road map to our 2020 goals. Our commitment to market-driven innovation is helping us advance our position in the markets we serve. Our power electronics chip packages for the new generation of wide band gap semiconductors are gaining significant traction in electric vehicle applications. Also, ACS has recently introduced a new thermoset product family tailored to massive MIMO phase array antennas, which are highly engineered and high performance for 4.5G and 5G wireless network capabilities.

We are also executing on our strategic imperative to identify and pursue synergistic M&A opportunities that enhance our existing capabilities and expand our product portfolio. Our recent acquisition of Griswold demonstrates our ongoing commitment to augmenting organic growth through thoughtful, well-executed acquisitions. Shortly I will speak in more detail about the strategic benefits Griswold brings to Rogers.

Our operational strategy is focused on ensuring capacity availability to fulfill the projected demand in our core market, flexibility with regard to geographic location and efficiency and cost improvements. We have addressed the majority of operational challenges we reported last quarter and are confident that we are getting back on track relative to our operational excellence goals.

Rogers is targeting top-quartile operating profit growth when compared to our peers as we execute our strategy to achieve our 2020 vision. On the revenue side, our goal is to deliver organic growth from our current businesses in the range of 7% to 10% per year. In addition, we expect the continued execution of our M&A strategy to add 5% to 8% in revenue growth per year for overall top line growth of 15% per year. Some of the acquired revenue may not come in smooth increments, but by the end of 2020 we expect Rogers to deliver roughly $1.2 billion in sales, with adjusted operating profit margin of at least 20%.

Turning to Slide 6. Earlier this month we announced the acquisition of Griswold, LLC, an industry leader in custom-engineered cellular elastomers and high-performance polyurethanes. This acquisition demonstrates our continued focus on adding top-of-the-pyramid companies to Rogers. These are businesses that offer market and technology leadership as well as differentiated products for highly engineered applications.

For the EMS business segment, Griswold's custom-engineered cellular elastomers expand our current product portfolio, while its high-performance polyurethane products increase our existing capabilities and provide immediate additional capacity to our manufacturing network. Similar to Rogers, Griswold's products and solutions serve a variety of applications in the general industrial, electronics, automotive and consumer markets. As the integration proceeds, we will maintain a strong North American focus and also seek opportunities to grow Griswold product lines through geographic expansion and product innovation.

Please turn to Slide 7. Our 2 growth drivers, advanced mobility and advanced connectivity, represent more than 50% of our revenues. Rogers enjoys a leadership position in many of these markets, where the outlook is very favorable. In advanced mobility, we are very encouraged by the continued adoption of our silicon nitride materials as automakers continue their race to introduce more EV and HEV models. Earlier this month, Jaguar-Land Rover announced plans to invest $13.5 billion over the next 3 years to develop electrified versions of all its models, and Toyota-Lexus has committed to offering 10 pure battery-powered models beginning in 2020.

This shift in the industry bodes well for the PES business, where our ceramic substrates offer high thermal connectivity and reliability. These features are essential for the smaller, more energy-efficient wide band gap semiconductors found in EV and HEV applications. PES is a technology and market leader in this space, with customized products and strong design capabilities to engineer relationships to meet complex customer market needs quickly.

In addition, momentum is gaining for 48-volt battery applications in Europe as OEMs look to mild hybrid options. 48-volt batteries meet the ever-increasing power requirements for mild hybrid technology and offer a compelling value proposition in the marketplace. Revenues for 48-volt battery applications played a substantial role in Rogers' Q2 EV/HEV revenues, and this momentum is expected to continue in line with the overall trends toward eMobility.

Relative to ADAS, as we move to higher levels of driver assistance and autonomy, we are seeing that automotive manufacturers' road maps include a greater number of radar sensors. Rogers is in a strong position here, as our portfolio is applicable across the full range of requirements for short-, mid-, and long-range sensors.

In the area of advanced connectivity, we continue to see signs that the transition to 5G is imminent, with testing and early deployments on the rise in China. For Rogers, 5G represents a much larger opportunity than past generations of wireless infrastructure due to the complexity of these advanced systems and the greater material content they require. ACS holds a solid leadership position in this market, offering differentiated products that meet customer needs for very high frequencies, thermal management and high performance that minimizes cross talk. We look forward to capitalizing on the large opportunities ahead.

Please turn to Slide 8. ACS achieved second quarter net sales of $76 million, a slight increase over Q2 2017, and sequential growth of 4% over Q1 2018. Revenues were largely driven by applications in aerospace and defense and Tennant for 4.5G and 5G wireless infrastructure and ADAS, partially offset by lower demand in portable electronics and wireless 4G LTE power amp applications.

For the remainder of the year, we see increasing demand for antenna applications for 4.5G and 5G wireless infrastructure applications, a slight improvement in 4G base stations with NB-IoT deployments and ZTE sanctions lifted, plus expected strength in ADAS.

The longer-term outlook for ACS is promising. The latest independent market analysis indicates 2019 5G base station deployments at roughly 100,000 units, with some experts indicating the number may be multiples of 100,000. ACS has achieved significant design wins in this space, where base stations require 2x to 4x of Rogers' content than that of the 4G LTE base stations. In addition, we are seeing growing adoption of our next-generation laminates for massive MIMO antennas for 4.5G and 5G applications. To meet the growth projections and in support of our robust opportunity pipeline, ACS has several capacity expansion projects in the U.S., China and Europe.

Please turn to Slide 9. In Q2, EMS net sales of $79 million were relatively flat compared to Q2 2017. Higher demand in portable electronics, consumer, automotive and mass transit applications was offset by lower demand in clean room automation equipment used in OLED display manufacturing, impacting the overall strength of our general industrial applications, which otherwise grew at roughly 8% in the quarter.

In the second half of the year, we expect continued improvement in the general industrial segment. In addition, we are continuing to drive operational synergies across our acquired businesses, including DeWAL, DSP and, more recently, Griswold.

Turning to Slide 10. PES delivered another great quarter with net sales of $54 million, a 12% increase over Q2 2017, excluding the impact of currency. Net sales increased due to broad-based demand across markets, including particular strength in electric and hybrid electric vehicles, renewable energy, mass transit and variable frequency drives. For PES, we expect the strength we've seen in the first half of the year to continue into the third and fourth quarters, driven by exceptionally strong demand for EV/HEV and x-by-wire applications.

As an unprecedented number of automotive OEMs accelerate their plans to introduce this technology to new models, the supply chain is responding. Recently a major power semiconductor manufacturer announced plans to invest EUR 1.6 billion to prepare for the next decade of significantly higher demand for EV/HEV among other applications.

PES offers a strong product portfolio to meet these evolving market needs, so our customers have asked us to accelerate our expansion plans. In response, Rogers has several PES production expansion projects underway in Europe and China to meet existing and projected growth. As we complete our plant consolidations and production moves to more cost-effective locations, we expect to see sequential margin improvement through the end of the year.

Please turn to Slide 11. Looking at the macroeconomic environment, we are clearly very encouraged by the positive growth forecast in many of our key markets. Based on recent reports, business confidence is gaining and global GDP is strong. We continue to monitor the potential effect of the ongoing tariff discussions, and we will remain vigilant and agile in our response to any changes.

I'll now turn the call over to Ram, who will report on our Q2 results in greater detail as well as additional financial highlights. Ram?

Ram Mayampurath - *Rogers Corporation - VP of Financial Planning & Analysis*

Thank you, Bruce. Good afternoon, everyone. In the slides ahead I will review our second quarter results in more detail, followed by our third quarter guidance.

Turning to Slide 13. Q2 2018 revenue, as previously noted, was $214.7 million, increasing $13.3 million versus the second quarter of 2017. This increase was primarily due to favorable FX, higher volume and pricing programs. Q2 2018 revenue was at the midpoint of our guidance range.

Adjusted operating margin was 14.8%, which decreased from 18.8% in Q2 '17. Adjusted operating income of $31.7 million decreased by $6.2 million compared to $37.9 million last year. The decline in adjusted operating margin and adjusted operating income was primarily the result of certain actions we have taken to improve our long-term efficiency and prepare for strong demand expectations.

Net income of $17.3 million in the second quarter 2018 was down $3.6 million versus prior year, less than the decline in operating profit, largely due to lower interest expenses from the paydown of debt, lower tax expenses and higher JV income. Second quarter 2018 adjusted earnings per share of $1.19 decreased by $0.14 versus Q2 2017. I will cover all these points in more detail in the slides that follow.

Please turn now to Slide 14 for a review of our quarterly revenue. Our revenue was up $13.3 million or 6.6% on a year-over-year basis. The second quarter exchange rate favorably impacted revenue by 4.2% or $8.4 million, primarily due to depreciation of euro and renminbi.

Q2 2018 volume in other was up 2.4% or $4.9 million versus prior year. Rogers was favorably impacted by strong broad-based demands across our power electronics solutions business, with particular strength in EV/HEV applications. We also saw growth in massive MIMO antenna applications.

As we mentioned in our Q1 call, we have put in place pricing programs to offset higher raw material costs. We have started seeing the positive impact of these programs in the second quarter. These positives were partially offset by declines in 4G LTE wireless base stations as well as continued weakness in clean room automation for OLED display manufacturing.

Looking at Slide 15. Our Q2 2018 adjusted operating income was $31.7 million versus $37.9 million in Q2 of '17. Q2 2018 adjusted operating margin was 14.8%, decreased from the 18.8% adjusted operating margin we reported in Q2 of '17. The deterioration in operating income was mainly due to unfavorable performance of $9.3 million coming from ongoing footprint consolidation and multi-site product qualification programs that resulted in duplication of some costs and higher freight in the quarter. In addition to that, costs associated with maintaining infrastructure to support strong demand expectations also had an unfavorable impact on Q2 results. Also in the quarter, we saw higher raw material costs and a onetime provision for a commercial issue. Increase in both SG&A and R&D of $2.4 million also contributed to lower operating income. This was mainly driven by investments to support future growth initiatives.

Partially offsetting these, volume and other improved operating income by $5.4 million, this favorable impact primarily from foreign exchange of $2.2 million and $3.2 million of higher volume and price after the negative impact of unfavorable portfolio mix. We are confident that our ongoing initiatives to drive synergies and cost optimization at our manufacturing facilities by focusing on process enhancements and automation will help drive gross margin improvement in the coming quarters.

Turning to Slide 16. We reported adjusted EPS of $1.19 in the second quarter of 2018, which is down versus last year's $1.33. As the slide depicts, the $0.14 decrease was primarily due to $0.33 of unfavorable performance and commodity cost, $0.03 higher SG&A to support future growth initiatives, $0.06 of higher R&D, including discrete engineering investments to support customer projects. These were partially offset by favorable items totaling to $0.28 due to $0.19 from volume and other, including $0.08 of FX, $0.11 from higher volume, mix and price, $0.04 improvement from lower effective tax rate, primarily due to the U.S. tax reform, $0.05 of other income from lower interest and higher JV performance.

If you turn to Slide 17, you will see that our Q2 segment results. On the left side of the chart is the segment revenue for our strategic business units. These have been powered by growth in the earlier section. Looking at the right side of the slide, you will see our segment adjusted operating income.

First, ACS adjusted operating income was $12 million, down $2.3 million from Q2 2017. This was primarily due to higher commodity costs, higher freight costs and costs associated with maintaining infrastructure to support future strong market demand projections for 5G and ADAS.

Next, EMS adjusted operating income was $12.8 million, down $4.4 million from Q2 2017. The decrease was largely due to lower throughput in certain product lines like OLED display manufacturing, resulting in underabsorption of fixed costs, freight and other costs related to capacity optimization and site consolidation and higher raw material costs.

Lastly, PES adjusted operating income was $5 million, up $300,000 from Q2 2017. This increase was mainly the result of favorable volume and price, partially offset by costs related to capacity optimization and site consolidation efforts and unfavorable impact of a onetime provision for a commercial issue of approximately $1 million.

Turning to Slide 18. You can see we ended the second quarter with a cash position of $175 million, adjusted EBITDA of $80.9 million or 18.8% in the quarter, excluding the adoption of revenue recognition guidance of $1.2 million. Year-to-date, we had the use of working capital of $44.7 million, adjusted for revenue recognition methodology. The decrease was primarily due to $18 million cash paid for incentive compensation, an inventory increase of $21 million, mostly driven by plant consolidation initiatives, multi-site qualification and managing long lead time raw material and an increase of accounts receivable of $9 million, increasing due to revenue timing, including a strong month of sales in June, partially offset by an increase of $4 million in accounts payable and other accrued liabilities.

Capital spending for the first half of 2018 was $20.2 million or 4.7% of revenue. Cash taxes paid year-to-date of $14 million was approximately $3.5 million less than the first half of 2017. The year-to-date effective tax rate is 23.2% versus 33% last year, lower due to U.S. tax reforms, net impact of 1048 releases and benefits from other programs we've been working on and the geographic mix of income generation.

Taking a look at our Q3 2018 guidance on Slide 19. Revenues are estimated to be in the range of $220 million to $230 million with earnings in the range of $0.97 to $1.12 per diluted share. The GAAP earnings per diluted share range does not include the estimate of purchase accounting for the recent Griswold acquisition. On an adjusted basis, we guided earnings in the range of $1.25 to $1.40 per diluted share. At the midpoint of our adjusted EPS range of $1.33, we are $0.14 better than Q2 2018.

We are guiding our gross margin at 37% for Q3 2018, an improvement of 130 basis points from Q2 2018. We expect the improvement to continue in the quarters ahead. We have taken actions and put actions in place to improve our profitability while continuing to invest in the capacity necessary to meet forecasted growth opportunities.

Guidance for capital spending for the year is in the range of $50 million to $60 million. The effective tax rate for the full year is guided to 25% to 27% and for Q3 is guided to 30% to 31%.

I will now turn the call back over to Bruce.

Bruce D. Hoechner - *Rogers Corporation - President, CEO & Director*

Okay, thanks, Ram. This concludes our prepared remarks and we'll now open the lines for Q&A.

QUESTIONS AND ANSWERS

Operator

[Operator Instructions.] And your first question comes from Craig Ellis from B. Riley FBR.

Craig Andrew Ellis - *B. Riley FBR, Inc., Research Division - Senior MD & Director of Research*

Congratulations on the growth that we're seeing in the business and the Griswold deal. I'll start there, Bruce. First, as we take a step back and look at Griswold along with DSP and DeWAL, what did those 3 acquisitions do for the business in aggregate? And specifically, what did Griswold add that you had been seeking for the portfolio?

Bruce D. Hoechner - *Rogers Corporation - President, CEO & Director*

The first, those 3 acquisitions, the DSP acquisition really bolstered our position in silicones and silicone sponge. And so we continue to utilize their capabilities because they had -- DSP, now part of Rogers -- had different machinery, different capabilities, different product line to broaden our silicone area.

In the Griswold -- I'll end with Griswold, but let me go to DeWAL. DeWAL really provided us a totally different polymer system in which to take to our customer base. Similar customer base, similar route to market, and so we've been able to utilize our existing field sales, some of our technical folks and also utilize our overseas capabilities to grow their -- the DeWAL product line. So that's given us a whole new window, a whole new opportunity in terms of PTFE polymers.

And then finally with Griswold, Griswold has 2 main product areas: the elastomerics that, the specialty elastomerics that have a variety of different applications and different application areas than the current EMS urethanes and silicone areas but utilize a similar route to market, same customer base in terms of distribution and preferred converters. So that system or that approach allows us to grow that business, we believe, pretty well, certainly in North America. And again, they're 97% -- Griswold's 97% North American based. So big opportunity for us in Europe and Asia.

The other part of their business, which is about 1/3 of their business, utilizes polyurethane foam technology very similar to Rogers' PORON. And so some similar applications, some alternative applications, a different mix of customers, so it broadens our footprint in polyurethanes. It also provides to us some immediate capacity on their lines which are capable, with some adjustments, of running Rogers' product lines.

So it's a -- those 3 acquisitions really continue to move us forward in what we like to call top-of-the-pyramid areas.

Craig Andrew Ellis - *B. Riley FBR, Inc., Research Division - Senior MD & Director of Research*

And then, Ram, is it fair to say that there's probably $6 million or so of revenue in your third quarter guidance for that? And would it be worth a penny or two in adjusted earnings on the bottom line? Or how should we think about the contribution in the guidance?

Ram Mayampurath - *Rogers Corporation - VP of Financial Planning & Analysis*

So a little higher than your estimate. The revenue's more $7 million, $7 million to $7.5 million rate.

Craig Andrew Ellis - *B. Riley FBR, Inc., Research Division - Senior MD & Director of Research*

Let me move on. Bruce, just from the sounds of the color that you provided around 5G, I sense that you've picked up incremental visibility in the last 3 months. And I was wondering if you could talk about some of the milestones that you see with the 5G ramp, and specifically as it relates to the way customers may be slowing their investments on 4G as they get ready for 5G. What's the net effect in the portfolio likely to be, both in the near term and intermediate term, as we get that great higher content with 5G, but as we see 4G slow down?

Bruce D. Hoechner - *Rogers Corporation - President, CEO & Director*

Right. So a very good pickup. So a couple of issues -- a couple of things that we've seen in the marketplace that we're very pleased with on the 5G side. First, I mentioned in my prepared remarks around the 4.5G and 5G massive MIMO antenna systems, base array antennas, that's a very good leading indicator of infrastructure moving into the 5G realm. And the reason I say that is that the 4.5G antennas that are going in, these massive MIMO antennas, can be altered very -- relatively easily using software to make them 5G compatible. So what we're seeing is that infrastructure, the tower infrastructure, starting to be built out. And fortunately for us, Rogers has developed some very interesting products that our customers are very excited about. And so we're seeing a real uptick on that side, and we saw that in the results in Q2 on antennas.

The second thing that we're seeing -- and it's very consistent, I'd say, across the industry -- we're hearing from industry experts, we're hearing from OEMs and also through some published reports in China regarding 5G build-out. And there's a consensus around about 100,000 5G base stations coming in the first part of 2019, with some folks saying it could be double that.

Now from our perspective, we don't have exact timing on that, and so is it early first quarter, late first quarter, second quarter? We, at this point, don't see -- don't have that visibility. But what we do know, we're starting to hear from OEMs that we need to get ramped up to make sure that we're ready for that. And the reason -- maybe 100,000 doesn't sound very high -- but we're talking 2x to 4x the content per base station of Rogers material versus what we saw in 4G. So very, very positive from our perspective, which ties back to some of the work that's going on -- that went on in Q2 continues in Q3 to build out our capacity. Our key objective here is to make sure that we've got capacity on hand when the demand comes because we think it could ramp relatively quickly. And certainly we don't want to be in a position to disappoint our customers.

Craig Andrew Ellis - *B. Riley FBR, Inc., Research Division - Senior MD & Director of Research*

And that relates to my third question. I'll move it back to Ram. Ram, from the guidance of 37% gross margin to the target model's 40%, we've got about 300 basis points. So as you look at the drivers, you certainly clearly articulated the 5 things that are negatively impacting gross margin on a year-on-year basis. We're moving higher from that in the third quarter. But as we look at the milestones to close that final 300-basis-point gap, how would you bin those out for us? Are there 3 or 4 things that contribute most of that gap, or how do we break down the difference that exists between where we are and the target model?

Ram Mayampurath - *Rogers Corporation - VP of Financial Planning & Analysis*

So we typically guide gross margin for the next quarter, but I also say that we're committed to our 40% target for 2020. To give you a bit more details, about 1/3 of that performance variance that we talked about in Q2 is related to the return of the top line of the 5G sales coming back. The remaining 2/3 are issues that will come through the next quarters and you'll start seeing our gross margin improvements as we will start working through our operational excellence programs.

Bruce D. Hoechner - *Rogers Corporation - President, CEO & Director*

Just to add a little bit of color to Ram's comment on that 1/3, essentially it's capacity held in abeyance for the surge that we are forecasting for 5G build-out and ADAS as well.

Operator

And your next question comes from Daniel Moore from CJS Securities.

Daniel Joseph Moore - *CJS Securities, Inc. - Director of Research*

And starting off, Bruce, the level of optimism I think I'm hearing, maybe that's even a little bit greater than the last couple of quarters. So can you give us a little sense for maybe revenue growth for the month of June and now into July and beyond, more optimism in terms of 5G? Just tangibly, what's driving your level of optimism around the revenue inflection? And then a similar question on the cost side. Just either Bruce or Ram, level of conviction that we have turned the corner as far as some of these onetime operating expenses, et cetera? And then I've got a quick follow-up.

Bruce D. Hoechner - *Rogers Corporation - President, CEO & Director*

So in terms of optimism on, let's say, 4G, 4.5G, 5G moving forward, we saw some nice strength in June at the close of the quarter. We also, in terms -- and a lot, and part of that had to do, certainly, with the antenna side of the 4G, 4.5G business. What we're looking forward towards is in the second half of the year here, a pickup in NB-IoT that we've been hearing about for the first half of the year. We're hearing very clearly from some large OEMs in China that, that is coming and will come to fruition in the second half.

Now will it be as great as we first anticipated in January? Probably not. But certainly what we're hearing very clearly is a pickup moving into Q2 -- Q3 and into Q4 on the NB-IoT side of the house. So there -- between the antenna that's getting built out, the NB-IoT that we're seeing and then what we're anticipating to be continued growth on the ADAS side, all this bodes well for the ACS business.

Daniel Joseph Moore - *CJS Securities, Inc. - Director of Research*

And then I think you gave a decent amount of color on the cost side. But if maybe just -- I guess if you can put it all together in terms of quantify what's sort of nonrecurring in the quarter and that would dissipate into Q3. And then if possible, how much of an impact did the lag between price increases and rising raw material costs have in Q2?

Ram Mayampurath - *Rogers Corporation - VP of Financial Planning & Analysis*

No, no, that was a good question. So just to give you a bit more color there, as you think about what impacted our Q2 numbers, it's clearly some of the assumptions we had on timing of some of these larger programs coming through and the impact of slower implementation on the results. That, together with the onetime commercial issue that we had, were the key variances to the forecast.

Looking forward to our guidance, clearly that onetime issue is not going to repeat. To your question on pricing, we put in place pricing programs towards the beginning of this quarter in many places -- in many of our businesses, and we expect the full quarter benefit to kick in, in Q3. So that is going to improve between Q2 and Q3.

And in addition to that, we have the impact of Griswold. That will also help our margins in Q3. So we are very confident about 37% margin guidance 3Q.

Daniel Joseph Moore - *CJS Securities, Inc. - Director of Research*

And I'll shift gears to what has been a -- certainly a bright spot on the top line, PES seeing strength across the board there. EBIT margins, kind of still in the high-single-digit range. Bruce, I think you alluded to a nice pickup. What type of ramp should we be looking for? And longer term, what type of EBIT margins are embedded in your 2020 guide of 20%-plus overall?

Bruce D. Hoechner - *Rogers Corporation - President, CEO & Director*

You're asking specifically EBIT margin for PES?

Daniel Joseph Moore - *CJS Securities, Inc. - Director of Research*

Correct. Where would that shake out or level off once we get to the 20% overall in 2020 and beyond?

Bruce D. Hoechner - *Rogers Corporation - President, CEO & Director*

Yes. Well, we don't break it out by individual unit. But we -- as I mentioned in my prepared remarks, we're doing a lot of work in the PES business in terms of site consolidation, moving to lower-cost manufacturing environments. So sequentially, we see certainly the gross margin side of the business moving forward quite well. And we're also putting in place, even in the existing facilities, automation to take out some of the labor costs that we've experienced, particularly in places like Germany where there's high labor costs. But overall, we've got a road map in place for the PES business. Volume certainly helps, but there's real actions and significant movement in place to drive down our overall costs and drive up our margin in that business.

Will we get to the level of corporate average? We're working towards that in terms of gross margins and so forth. But that's probably a couple of years out, certainly a few years out.

Operator

[Operator Instructions.] And your next question comes from Sean Hannan from Needham.

Sean Kilian Flanagan Hannan - *Needham & Company, LLC, Research Division - Senior Analyst of Smart Grid, Electronic Mfg Svcs, IT Components & Electronic Components*

So sorry to beat a dead horse here. I want to see if I can drill into some of the factors around costs a little bit. I'm not sure if I'm hearing all the answers that I might be seeking, so let me try some of the questions from a little bit of a different angle. When I look at Slide 16 here and you folks provide this bridge for your earnings, now at least versus where The Street was, we had an earnings miss for the quarter as well as for the guide. I think that there are some pretty understandable factors, and we probably were too low in our estimation for what perhaps the inefficiency would be from that added capacity. Ram, I think you had spoken to that a little bit earlier, being -- and Bruce -- being maybe about 1.3 of where we have this performance impact. So presumably, that would be $0.11 that would have been in this quarter.

So as I step back and I try to think about all of these puts and takes, when does this $0.33 part of the equation, when does that resolve? It sounds like the 5G factors are probably more slow increments, and perhaps that goes away beginning of '19. I think we presumably had the -- or we previously had the assumption that some of the freight and other multi-site qual costs were something to be resolved this quarter. So can we just get some better clarity around these pieces here?

Ram Mayampurath - *Rogers Corporation - VP of Financial Planning & Analysis*

Sure, Sean. So if you talk about the $9.3 million, it translates to about $0.33 of the EPS, and about $0.11 of that is related to fixed overhead commitment, about $3 million. That's the part that is directed directly towards the 5G and the top line changes that we are expecting and we are preparing for.

The other $0.22 is the $6 million that is related to some temporary ramp-up in freight and some cost duplication coming from site consolidation efforts and also qualification of multi-sites. That, together with some of the raw material versus pricing timing, which we hope to get a better of in Q3, we'll start coming back into our results as we go through these implementations of some of these bigger projects.

So like I said, about...

Sean Kilian Flanagan Hannan - *Needham & Company, LLC, Research Division - Senior Analyst of Smart Grid, Electronic Mfg Svcs, IT Components & Electronic Components*

Okay, so the resolution of those basically -- I had the prior impression that would be concluded as a drag some time during the course of this September quarter. Am I correct to interpret that, that is now pushed out an additional quarter? That's now lagging into the fourth quarter? Or is it even something longer than that? That's part of what I'm trying to get my arms around.

Bruce D. Hoechner - *Rogers Corporation - President, CEO & Director*

So just to maybe put a little bit finer point on it, certainly the price increases that we've talked about are coming through in Q3, right? They were instituted towards the end of Q2. We had some benefit. They're moving into Q3 and fully implemented by the end of Q3.

The multi-site qualifications that we spoke about in the last call, as I said, would extend into Q3. They have extended a little bit into Q3 further than we had thought. We thought maybe July would be the end. It's probably August before we see our way clear. So the assumption there would be it's going to be with us a little bit for Q3. By Q4, we'll be clear of that.

The real point that I think Ram was making here was...

Sean Kilian Flanagan Hannan - *Needham & Company, LLC, Research Division - Senior Analyst of Smart Grid, Electronic Mfg Svcs, IT Components & Electronic Components*

It parallels with that, correct, Bruce?

Bruce D. Hoechner - *Rogers Corporation - President, CEO & Director*

I'm sorry. Say it again?

Sean Kilian Flanagan Hannan - *Needham & Company, LLC, Research Division - Senior Analyst of Smart Grid, Electronic Mfg Svcs, IT Components & Electronic Components*

With the multi-site quals? Right? Freight parallels with that, so that also would go away by 4Q?

Bruce D. Hoechner - *Rogers Corporation - President, CEO & Director*

Yes. Yes. That should be (inaudible).

Sean Kilian Flanagan Hannan - *Needham & Company, LLC, Research Division - Senior Analyst of Smart Grid, Electronic Mfg Svcs, IT Components & Electronic Components*

Okay, all right, sorry.

Bruce D. Hoechner - *Rogers Corporation - President, CEO & Director*

That's exactly right. The other point is the plant consolidations, and so Europe, Belgium is consolidating 2 plants into 1. And so that will be completed the end of Q3, so we should see some benefits moving forward in Q4. The move of DSP from California to Carol Stream in Illinois is taking a little bit longer and taking a little bit more cost than we first anticipated. And so we still are targeting Q1 2019 to complete that transition, and we're working very hard to meet that time line, with probably a little bit additional cost than first anticipated.

So the other point I was going to make had to do with fixed overhead and that 1/3 or $0.11 that Ram referred to. That doesn't really go away until we start seeing the ramp in 5G coming. And as we mentioned, we're looking at that in Q1 into Q2 of '19.

Sean Kilian Flanagan Hannan - *Needham & Company, LLC, Research Division - Senior Analyst of Smart Grid, Electronic Mfg Svcs, IT Components & Electronic Components*

Okay. But by the time we get to 4Q, at least half of, say, this $0.33 headwind we had seen in the June quarter should be gone, and we should see, and then the remainder of it, some improvement, so it should arguably be a little bit better than half of what all kind of comes back into the model kind of on a run rate -- in concept, kind of a run rate perspective.

Bruce D. Hoechner - *Rogers Corporation - President, CEO & Director*

I think that's a fair point, yes. That's where we are in our estimation as well.

Sean Kilian Flanagan Hannan - *Needham & Company, LLC, Research Division - Senior Analyst of Smart Grid, Electronic Mfg Svcs, IT Components & Electronic Components*

All right. Sorry to go through all -- that's so painfully -- yes, I just think it's really crucial to call out that there's -- while we, again, we had the miss in the quarter as well as the guide, but there's a big chunk here that's explainable, and a lot of it gets resolved or is in a good path for getting resolved, and a little bit more granularly.

Bruce D. Hoechner - *Rogers Corporation - President, CEO & Director*

Right.

Sean Kilian Flanagan Hannan - *Needham & Company, LLC, Research Division - Senior Analyst of Smart Grid, Electronic Mfg Svcs, IT Components & Electronic Components*

So that addresses my concern, so...

Bruce D. Hoechner - *Rogers Corporation - President, CEO & Director*

Good, Sean. And I think you can sense from my position on this and my optimism, that we have this well in hand. We understand it. We've got plans in place. We're driving through it, and I think your conclusion is very similar to where we are in terms of when it goes away and the amount that goes away.

Operator

[Operator Instructions.] Your next question comes from Christopher Hillary from Roubaix.

Christopher Edmund Hillary - *Roubaix Capital, LLC - CEO and Portfolio Manager*

I wanted to ask you about the ASP lift you're going to get from 5G. Are there other growth areas where you have a similar dynamic that's going to come into play and, I guess, in both of those cases, how is that going to impact your gross and operating margins?

Bruce D. Hoechner - *Rogers Corporation - President, CEO & Director*

So in terms of 5G, we think it's really around content, not average selling price that goes up, right? So our -- the content in a single base station is 2x to 4x Rogers material than what was in a 4G. So that's an uplift. That's in terms of growth, that would be revenue growth in line with the implementation of 5G. And more broadly in terms of growth opportunities for the company, certainly ADAS, the blind spot in adaptive cruise control sensors, that continues to be a very strong area for us. As we look forward, we have both 24-gig and 77-gig materials that are used there, 77 probably being the longer-term choice of the industry, and so we're well versed there. And again, the industry numbers that we're hearing are 20% to 40% growth rates per year, and some of that will vary as time goes by and penetration happens, greater penetration into the market. But that's a big growth area for us.

But the big story, and the one that continues to be very consistent quarter after quarter is the PES EV/HEV x-by-wire direct-bonded copper-chip mounting and silicon nitride materials that are used for the semiconductors under the hood for electric vehicles, for hybrid electric. And we've seen every quarter growth rates in the double digits for the last year or so. And we see no change in projections. As a matter of fact, I referenced in my opening remarks that people are putting in capacity and coming to us and telling us we need to expand our capacity because this wave of EVs and HEVs is really taking off and really going to be there moving forward.

So we've got a number of really high, nice growth areas for the company between what we like to call advanced mobility, EV/HEV, and advanced connectivity in the areas of 4G to 5G.

Christopher Edmund Hillary - *Roubaix Capital, LLC - CEO and Portfolio Manager*

And do the newer products that you're looking forward to selling more of or continuing to sell, do they come in at higher structural margins, or is it more just volume versus your existing production plant?

Bruce D. Hoechner - *Rogers Corporation - President, CEO & Director*

I would say it's similar. There are some, depending on the specific product, might be a little bit higher. But generally, we're modeling similar profit margins moving forward.

Operator

And I will now turn the call over to Bruce for closing remarks.

Bruce D. Hoechner - *Rogers Corporation - President, CEO & Director*

All right, thank you, Brandon. That concludes our call today. I want to thank everyone for joining us, and have a very good evening. Thank you.

Operator

This concludes today's conference call. You may now disconnect.